

ENVIRONMENTAL ASSESSMENT ANDREWS AFB HOUSING MASTER PLAN



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FINDING OF NO SIGNIFICANT IMPACT ANDREWS AIR FORCE BASE MILITARY FAMILY HOUSING MASTER PLAN

Andrews Air Force Base (AFB) proposes to demolish, renovate, and construct housing units in the current military family housing property on the west side of the base. An environmental assessment (EA) has been prepared in accordance with the requirements of the National Environmental Policy Act (NEPA), and Air Force Instruction (AFI) 32-7061, and is hereby incorporated by reference.

Description of the Proposed Action and Alternatives

The proposed action, referred to as Alternative A, would involve the demolition of selected military family housing buildings. The remaining buildings, all built between 1946 and 1976, and associated neighborhoods would undergo renovations; this includes the complete renovation of the interior, exterior, and associated utilities and infrastructure. As of FY 2003, there are 2,456 total housing units on and off base. The 2003 Housing Requirement and Market Analysis (HRMA) and Housing Community Plan (HCP) state that the total military housing requirement for Andrews AFB should be 1,061 units, 117 units for officers and 944 units for enlisted. This leaves a surplus of 1,395 units. In order to meet the new requirement, Andrews AFB proposes to demolish a combination of single houses, duplexes, and multifamily structures with up to six units. In addition to demolition and renovation, construction of 56 new units would be completed in the Vandenberg, Columbus Circle, and Command Lane neighborhoods. This Alternative would ensure that Andrews AFB maintains compliance with the 2003 HRMA and HCP.

The demolition of housing units would open land on Andrews AFB for potential new land uses including green space, light industrial, administrative, or other new uses appropriate to the operation of Andrews AFB. One location in particular, the southernmost area of housing, south of Dayton Avenue and Youngstown Road to the fenceline, would potentially be turned to green space. Another significant area is located along the western side of Virginia Avenue, between Tucson Road and Menoher Drive. The demolition of housing units in this area would allow for new land uses including administrative, Air Force operations, general building space, and/or light industrial. The remaining areas of land, with housing to be demolished, would have potential land uses including green space, recreational activities including fields, parks, and pedestrian trails, community use, as well as potential uses for administrative, education, and Air Force operations.

An alternative, referred to as Alternative B, to the proposed action would involve the demolition of the housing units discussed in Alternative A on the western side of Andrews AFB to meet the 2003 HRMA requirement to reduce the 1,395 surplus units. There would be no housing or neighborhood renovations to the remaining units and no construction of new units. This Alternative would not construct new roads; renovate infrastructure or utilities, and no construction of new officer's quarters. This Alternative would not meet the Air Force's goal to provide safe, high-quality, energy-efficient, well-managed, affordable housing to military personnel and their families, as the housing units were constructed between 1946 and 1976 and are in need of renovations. Nor would it meet the requirements of the 2003 HRMA and HCP to accommodate housing for the proposed 1,061 units.

The No Action Alternative involves no demolition, renovation, or construction. The current housing and maintenance situation of the aging buildings and utilities would remain. This alternative would not meet the requirements of the 2003 HRMA and HCP to remove the surplus 1,395 units on and off-base. In order to meet these requirements, the surplus personnel would move off base and there would be abandoned housing units remaining on base.

Summary of Anticipated Environmental Impacts Associated with the Proposed Action, Alternative A

The proposed action would not result in any major environmental consequences, would have some minor improvements, such as the removal of potential lead based paint in the older housing units, and would result in a significant change in land use on Andrews AFB. The EA provides an analysis of the potential environmental impacts associated with the proposed action for eleven resource categories (air quality, water, noise, ecological resources, physical resources, land use and military family housing infrastructure, socioeconomics, environmental justice, cultural resources, hazardous material and waste management, and safety and occupational health).

During the use of heavy machinery for the demolition and construction process, minor short-term negative impacts would occur to the following resources, increased levels of air emissions but overall impacts to air quality would not be significant, potential increase in soil erosion and hazardous substance contamination of surface and storm waters, increase noise levels, short-term loss and disturbance of wildlife habitat areas, increased hazardous material use and creation of waste, and increased worker safety concerns. There would be an increase in jobs during the action periods, creating a minor short-term positive effect on the socioeconomics. There would be negligible to no impact on environmental justice and the cultural resources.

There would be negligible to minor long-term impacts on most resources areas, but there will be a positive impact on land use on base. The demolition would create approximately 71 acres of land for new uses. Green space, administrative, community, recreational, light industrial, or other Air Force operations, are all possible new land uses. The creation of new green space would have a positive impact on the environment, decreasing air emissions and noise levels, increasing precipitation absorption and ground water levels, and increased wildlife habitat and forested areas. The generation of new buildings or light industrial use could create potential negative impacts on the environment, including increase air emissions, noise levels, water and storm water contamination, hazardous material and waste use and creation, and worker safety concerns.

Finding of No Significant Impact

Based on the findings of the EA, implementation of the proposed action , Alternative A, which I have selected, would pose no significant impact on human health or the natural environment. Any negative impacts to humans and the environment that could occur are minor and temporary. Based on the foregoing, a Finding of No Significant Impact is warranted and an environmental impact statement is not required for the proposed action.



JOHN R. RANCK, JR., Colonel, USAF
Vice Commander



Date

EXECUTIVE SUMMARY

This draft Environmental Assessment (EA) identifies and evaluates the environmental impacts of Andrews Air Force Base's (AFB) proposal to demolish, renovate, and construct housing units in the military family housing (MFH) property on the west side of the base. This EA has been prepared in accordance with the requirements of the National Environmental Policy Act (NEPA), and Air Force Instruction (AFI) 32-7061 (The Environmental Impact Analysis Process, as codified in 32 Code of Federal Regulations [CFR] 989 and Regulations established by the Council on Environmental Quality (CEQ), 40 CFR 1500-1508). The EA process is designed to:

- ensure the public is involved in the process and fully informed about the potential environmental effects, and
- help decision makers take environmental factors into consideration when making their decision.

The proposed action would involve the demolition of selected military family housing buildings. The remaining buildings, all built between 1946 and 1976, and associated neighborhoods would undergo renovations; this includes the complete renovation of the interior, exterior, and associated utilities and infrastructure. In addition to demolition and renovation, construction of 56 new units would be completed in the Vandenberg, Columbus Circle, and Command Lane neighborhoods. This proposed action would ensure that Andrews AFB maintains compliance with the 2003 Housing Requirement and Market Analysis (HRMA) and Housing Community Plan (HCP) which state that the total military housing requirement should be 1,061 units, 117 units for officers and 944 units for enlisted. This leaves a surplus of 1,395 units. The demolition, renovation, and construction would ensure that Andrews AFB would address this surplus.

An alternative to the proposed action would be demolition of the same buildings, but no whole house renovations would occur. Also, a no action alternative is also analyzed in within this EA. This involves maintaining the baseline conditions that currently exist on Andrews AFB.

Summary of Environmental Impacts

This EA provides an analysis of the potential environmental impacts associated with the proposed action for eleven resource categories (air quality, water, noise, ecological resources, physical resources, land use and military family housing infrastructure, socioeconomics, environmental justice, cultural resources, hazardous material and waste management, and safety and occupational health). As indicated in Chapter 4, the proposed action and alternatives would not result in any major environmental consequences; some minor improvements, such as the removal of potential lead based paint in the older housing units, and would result in a change in land use on Andrews AFB.

During use of heavy machinery for the demolition and construction process, minor short-term negative impacts would occur to the following resources, increased levels of air emissions but overall impacts to air quality would not be significant, potential increase in soil erosion and hazardous substance contamination of surface and storm waters, increase noise levels, short-term

loss and disturbance of wildlife habitat areas, increased hazardous material use and creation of waste, and increased worker safety concerns. There would be an increase in jobs during the action periods, creating a minor short-term positive effect on the socioeconomics. There would be negligible to no impact on environmental justice and the cultural resources.

There would be negligible to minor long-term impacts on most resources areas, but an impact on land use on base. The demolition would create approximately 71 acres of land for new uses. Green space, administrative, community, recreational, light industrial, or other Air Force operations, are all possible new land uses. The creation of new green space would have a positive impact on the environment, decreasing air emissions and noise levels, increasing precipitation absorption and ground water levels, and increased wildlife habitat and forested areas. The generation of new buildings or light industrial use could create potential negative impacts on the environment, including increase air emissions, noise levels, water and storm water contamination, hazardous material and waste use and creation, and worker safety concerns.

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ACRONYMS AND ABBREVIATION

AFB	Air Force Base
AICUZ	Air Installation Compatible Use Zone
AW	Airlift Wing
BASH	Bird-Aircraft Strike Hazard
CAA	Clean Air Act
CCF	Hundred Cubic Feet
CEQ	Council on Environmental Equality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CES/CEVQ	Civil Engineering Squadron
CFR	Code of Federal Regulations
COMAR	Code of Maryland Regulations
CWA	Clean Water Act
dBA	Decibel A-Weighted
DoD	Department of Defense
DOT	Department of Transportation
DNL	Day-Night Average Sound Level
EA	Environmental Assessment
EPA	U.S. Environmental Protection Agency
EO	Executive Order
ERP	Environmental Restoration Program
ESA	Endangered Species Act
GIS	Geographic Information System
HCP	Housing Community Plan
HHS	Department of Health and Human Services
HRMA	Housing Requirement and Market Analysis
HUD	Department of Housing and Urban Development
INRMP	Integrated Natural Resources Management Plan
IRP	Installation Restoration Program
IICEP	Intergovernmental and Interagency Planning and Coordination for

	Environmental Planning
MDE	Maryland Department of the Environment
MFH	Military Family Housing
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NPDES	National Pollution Discharge Elimination System
OSHA	Occupational Safety and Health Act
PCB	Polychlorinated Biphenyl
SIP	State Implementation Plan
USCB	U.S. Census Bureau
USAF	U.S. Air Force
USFWS	U. S. Fish and Wildlife Service
WSSC	Washington Suburban Sanitary Commission

1.0 PURPOSE AND NEED FOR ACTION

1.1 Introduction

The U.S. Air Force and the 89 Airlift Wing (AW) propose to construct new family housing at Andrews Air Force Base (AFB) in order to provide safe, high-quality, energy-efficient, well-managed, affordable housing to meet the needs of Andrews AFB personnel and their families. This environmental assessment (EA) has been prepared to analyze the potential environmental impacts associated with the proposed action in accordance with the requirements of the National Environmental Policy Act (NEPA) (Public Law 91-190, 42 United States Code 4321 et seq). In addition, this document was prepared in accordance with the following:

- 32 Code of Federal Regulations (CFR) 989, which implements Section 102 (2) of NEPA
- Regulations established by the Council on Environmental Quality (CEQ) (40 CFR 1500-1508)

Section 1.2 provides background information on the location of Andrews AFB. The purpose and need for the proposed action are described in Section 1.3. The scope of the analysis is described in Section 1.4. Section 1.5 provides a summary of permits that may apply to the proposed action.

A detailed description of the proposed action and alternatives is provided in Chapter 2.0. Chapter 3.0 describes the existing conditions of various environmental resources that could be affected if the proposal were implemented. Chapter 4.0 describes how those resources would be affected by implementation of the proposed action and alternatives.

1.2 Location of Proposed Action

Andrews AFB is located in Prince George's County, Maryland, approximately 10 miles southeast of Washington, D.C., southeast of Interstate-495, the Capital Beltway. The base covers 4,346 acres and is surrounded by the communities of Morningside to the north, Clinton to the south, Woodyard to the east, and Camp Springs to the west. Figure 1.2-1 shows the location of Andrews AFB. Most of the current Military Family Housing (MFH), hereby referred to as the housing, is located on the western half of the base, around the perimeter, bordering the fenceline in the southwest corner, accessible via West Perimeter Road and Virginia Avenue. Four neighborhoods: Vandenburg Drive, Chesapeake Landing, Annapolis Estates, and Potomac View comprise the housing in the west and southwest areas. There are two smaller housing areas on the eastern portion of the base, both bordering the fenceline. Figure 1.2-2 shows the location of the MFH property addressed in this EA.

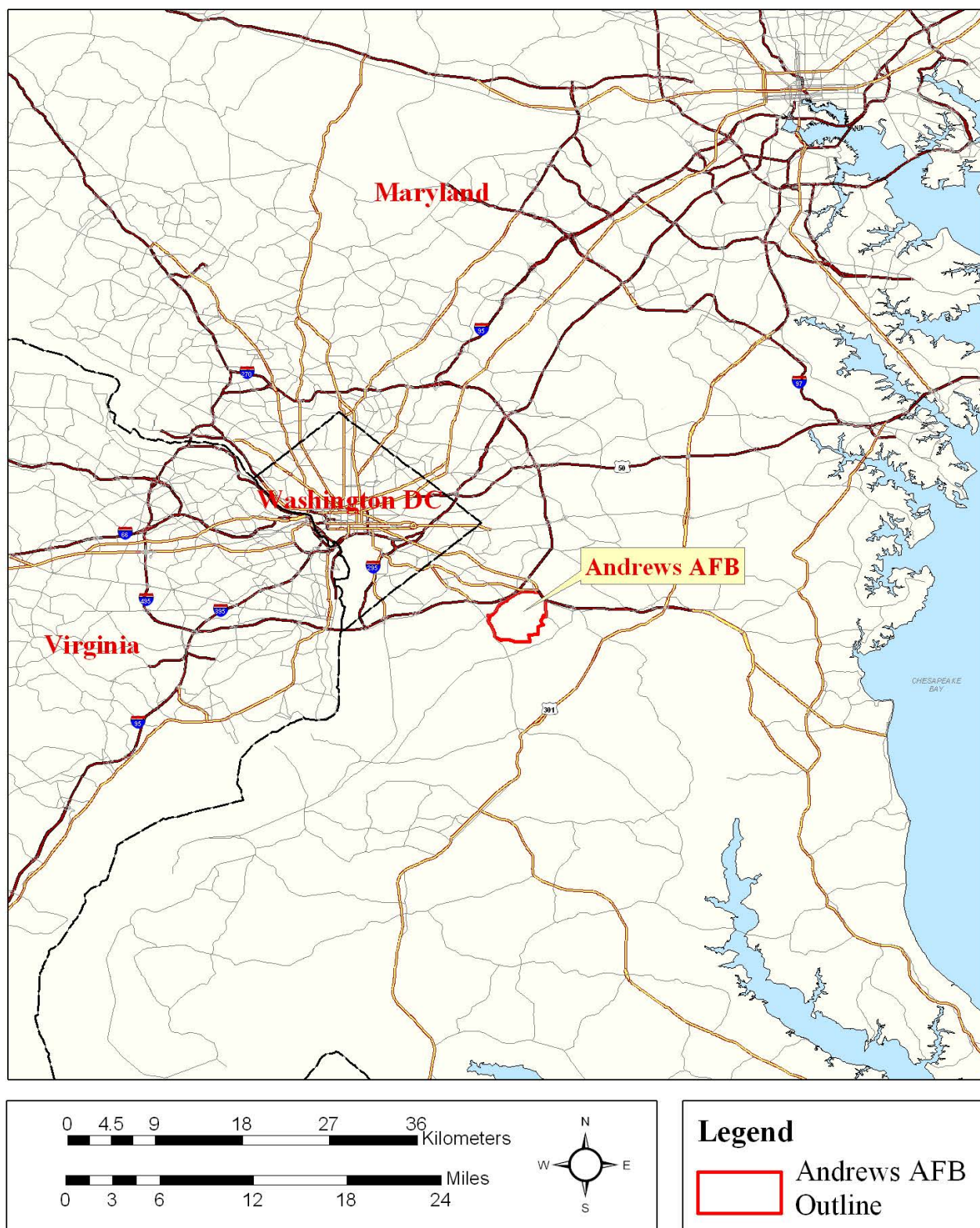
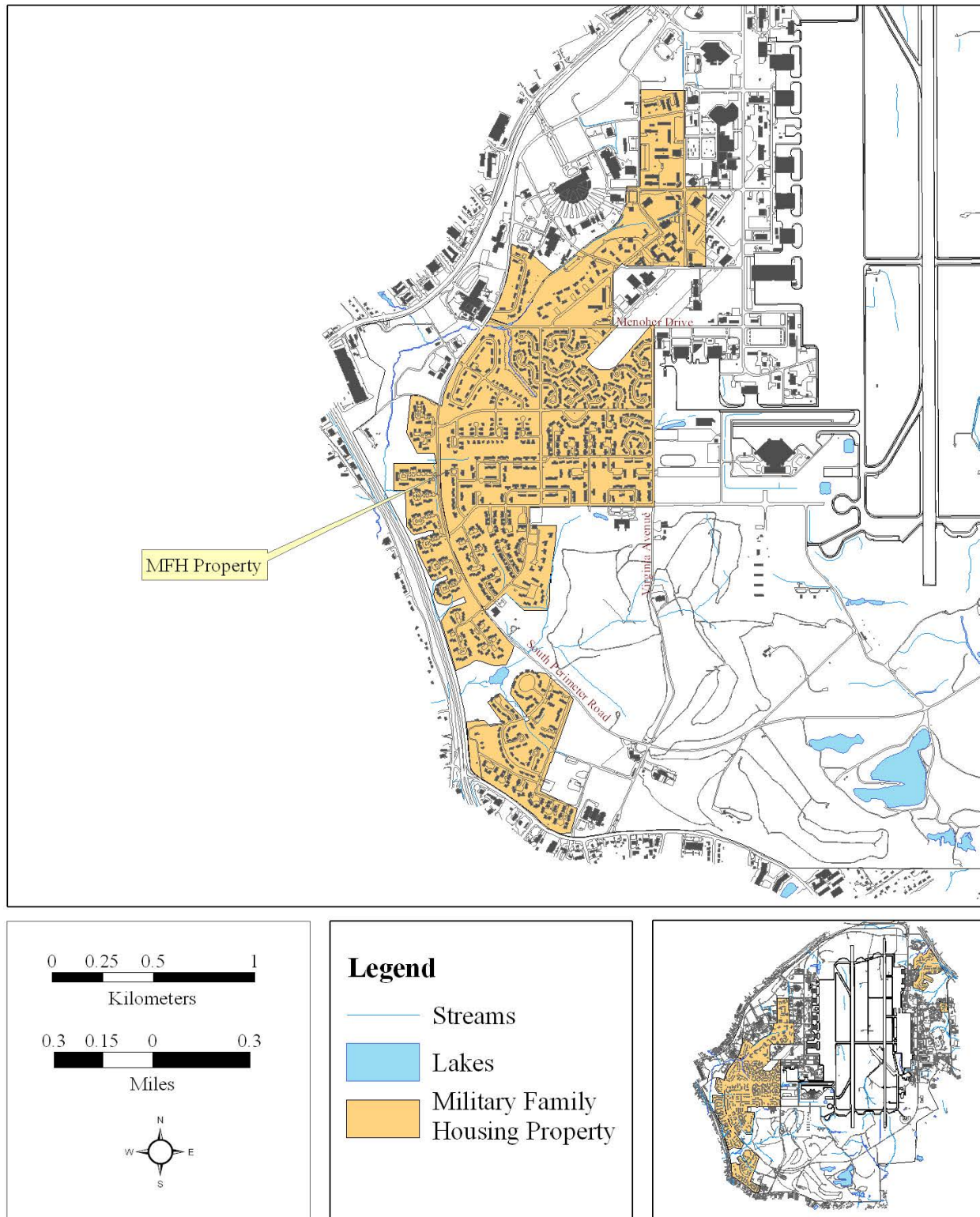
Figure 1.2-1: Location of Andrews AFB

Figure 1.2-2: Location of Andrews AFB Military Family Housing Property

1.3 Purpose and Need

The purpose of the proposed action is to update and improve the housing and neighborhoods on Andrews AFB in order to accommodate military members and their families and to comply with the guidelines set forth in the Air Force 2003 Housing Requirement and Market Analysis (HMRA) and the Andrews AFB Housing Community Plan (HCP). Currently, Andrews AFB has a surplus of 1,395 housing units. The 2003 HRMA states that the total military housing requirement for Andrews AFB should be 1,061 units. This includes 117 units for officers and 944 units for enlisted, both on and off-base. As of fiscal year (FY) 2003, 2,456 total units exist on and off-base.

Andrews AFB needs to improve and appropriately size the number of housing units located on base. The HCP directs that selected MFH buildings on the western side of the base, (a combination of single houses, duplexes, and buildings) would be demolished and not be replaced. The remaining housing units on the western part of the base, which were constructed between 1946 and 1976, would all undergo whole house renovations, including the interior, exterior, and supporting infrastructure. In addition to demolition and renovation; construction of 56 new units would be completed in the Vandenberg, Columbus Circle, and Command Lane neighborhoods.

Andrews AFB currently has an authorized manpower of 5,712 personnel; this includes all personnel that the housing office has the responsibility to house (Andrews AFB, 2003b). The proposed action would require personnel living in the buildings that would be demolished to acquire off-base housing. This would leave the remaining personnel, which includes key mission essential personnel and lower grade enlisted and junior officers who have a lower Basic Allowance for Housing (BAH), to have their housing renovated and/or replaced. The Air Force has set guidelines detailing that any housing demolition, renovation, or construction at Andrews AFB would take place starting in FY 2004 and go through FY 2007 with possible construction into FY 2008. Associated maintenance, infrastructure upgrades and service operation would continue throughout this five-year period.

In meeting the goals of the proposed action, military family housing units on the western side of Andrews AFB would be demolished, removed, and/or renovated. The proposed action would include construction, removal of debris, infrastructure upgrades, and operation of new military family housing neighborhoods. It would include all required permits and reviews and best management practices to minimize environmental impacts. It would create new open space and provide areas of new land use, as well as meet the needs of Andrews AFB and the 89 AW goals to achieve excellence in its facilities and quality of life requirements.

1.4.1 Scope of Analysis

This EA is designed to provide an analysis of the planned upgrades to the military family housing areas on Andrews AFB. Specific footprints of buildings and square footages of roadways are not analyzed. The intention of analysis is to discuss a broad range of impacts that would occur to each resource area if the proposed action or one of the alternatives is implemented. Individual housing designs, parking lots, and green space designs may change

over the course of the five-year period during which the proposed upgrades would take place. This EA examines the various areas, processes, and outcomes of the proposed action of demolition, renovation, and construction of military family housing on the western half of the base. The action would occur within the boundaries of Andrews AFB and would involve all related activities that accompany demolition and construction, removal of debris, moving surface land, and removal and installation of utilities. The assessment includes the potential, short- and long-term impacts on air quality, water resources, noise, ecological and physical resources, land use and infrastructure, socioeconomic, environmental justice, cultural resources, hazardous materials and waste, and safety and occupational health. Any construction or other process involved in this proposed action would not change or interfere with airspace or any aircraft flight operations.

1.4.2 Applicable Regulatory Compliance and Required Coordination

This EA has been prepared in compliance with NEPA; other federal statutes, such as the Endangered Species Act (ESA), the Clean Air Act (CAA), the Clean Water Act (CWA), and the National Historic Preservation Act (NHPA); Executive Orders (EOs); and other applicable state statutes and regulations. In order to implement the proposed action or any of the alternatives, various federal and state reviews and permits would be required. These reviews and permits vary depending on the location and nature of the action. Table 1.4-1 lists reviews and potential permits required to implement the proposed action. (Note: this list of reviews and permits may be expanded upon during completion of the environmental analysis and with the input from public agencies and the Air Force.)

Table 1.4-1 Applicable Reviews and Permits		
Review/Permit	Agency	Need
NEPA	Air Force/CEQ	Federal action with potential environmental impacts
Air Conformity Review under the CAA	Air Force/Maryland Department of Environment	Potential air pollutants
Section 7 of ESA	Air Force /U.S. Fish and Wildlife Service (USFWS)	Potential impacts to threatened and endangered species
State Species of Concern	Air Force/Maryland Department of Natural Resources	Potential for impacts to state species of concern
Water Use, Storm water and Sewer	Air Force/Maryland Department of the Environment and Washington Suburban Sanitary Commission (WSSC)	Potential increase in water use or runoff
NPDES Construction Permit	Air Force/ Maryland Department of the Environment	Construction activities of new housing would disturb an area greater than 1 acre

Table 1.4-1 continued		
Review/Permit	Agency	Need
Section 106 of NHPA	Air Force/Maryland Department of Historic Resources	Potential impacts to historic properties
CWA – Section 404 Water Use	Air Force/Corps of Engineers/Maryland Department of the Environment	Potential for impacts to wetlands
Public participation and Intergovernmental and Interagency Planning and Coordination for Environmental Planning (IICEP)	Air Force/Maryland Department of Planning	Pursuant to EO 12372 - coordination of the review of the proposed project by state and local agencies and review by interested public.
Occupational Safety and Health Administration (OSHA)	Air Force/OSHA/Maryland Department of the Environment approval for removal of lead based paint and asbestos	Potential presence of lead based paint, asbestos and any other hazards. Hazard communication worker protection measures required for all work involving hazardous substances (29 CFR 1900.1200 and 1926.59)
Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)	Air Force/ Maryland Department of the Environment	Construction near any Installation Restoration Program (IRP) Sites.

A list of applicable laws and regulations that govern the proposed actions is included in Appendix A.

2.0 DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

2.1 Introduction

The following provides a detailed description of the proposed action and alternatives to improve housing on Andrews AFB. This chapter presents the alternatives to the proposed action and a summary of the selection criteria for the alternatives. The chapter also includes a discussion of the No Action Alternative, alternatives considered but eliminated, and a comparison of the environmental consequences of each action alternative.

2.2 Selection Criteria for Alternatives

In order to meet the purpose and need, viable alternatives must comply with the 2003 HRMA and HCP guidelines to reduce the number of military family housing units from 2,456 to 1,061 and maintain the standards of housing that the Air Force and the 89 AW have set to achieve excellence in facilities and quality of life. A viable alternative must increase land use efficiency and be compatible with the Andrews AFB General Plan. A viable alternative must comply with all applicable regulations and be environmentally responsible, with minimal impacts to natural resources and the surrounding community.

2.3 Proposed Action

The proposed action is to improve the housing on the western side of the base to accommodate the military members and their families in accordance with the guidelines set forth in the 2003 HMRA and the HCP. Safe, high-quality, energy-efficient, well-managed, affordable housing would meet the needs of Air Force personnel and their families.

2.4 Alternative A

As of FY 2003, there are 2,456 total housing units on and off base. The 2003 HRMA states that the total military housing requirement for Andrews AFB should be for 1,061 units, 117 units for officers and 944 units for enlisted, leaving a surplus of 1,395 units. In order to meet the new requirement, Andrews AFB proposes to demolish select family housing buildings on the western side of the base. This includes a combination of single houses, duplexes, and multifamily structures with up to six units. The remaining housing units on the western part of the base, which were constructed between 1946 and 1976, would undergo whole house renovations, including the interior, exterior, and infrastructure. In addition to the proposed demolition and renovation, construction of 56 new units would be constructed in the Vandenberg, Columbus Circle, and Command Lane neighborhoods. Construction of approximately 56 new units would occur in existing housing areas. It would also include neighborhood renovations and removal of existing roads and construction of new roads to accommodate the new units. Figure 2.4-1 displays the location of the military family housing buildings proposed to be demolished. Table 2.4-1 presents the proposed units to be constructed in each neighborhood.

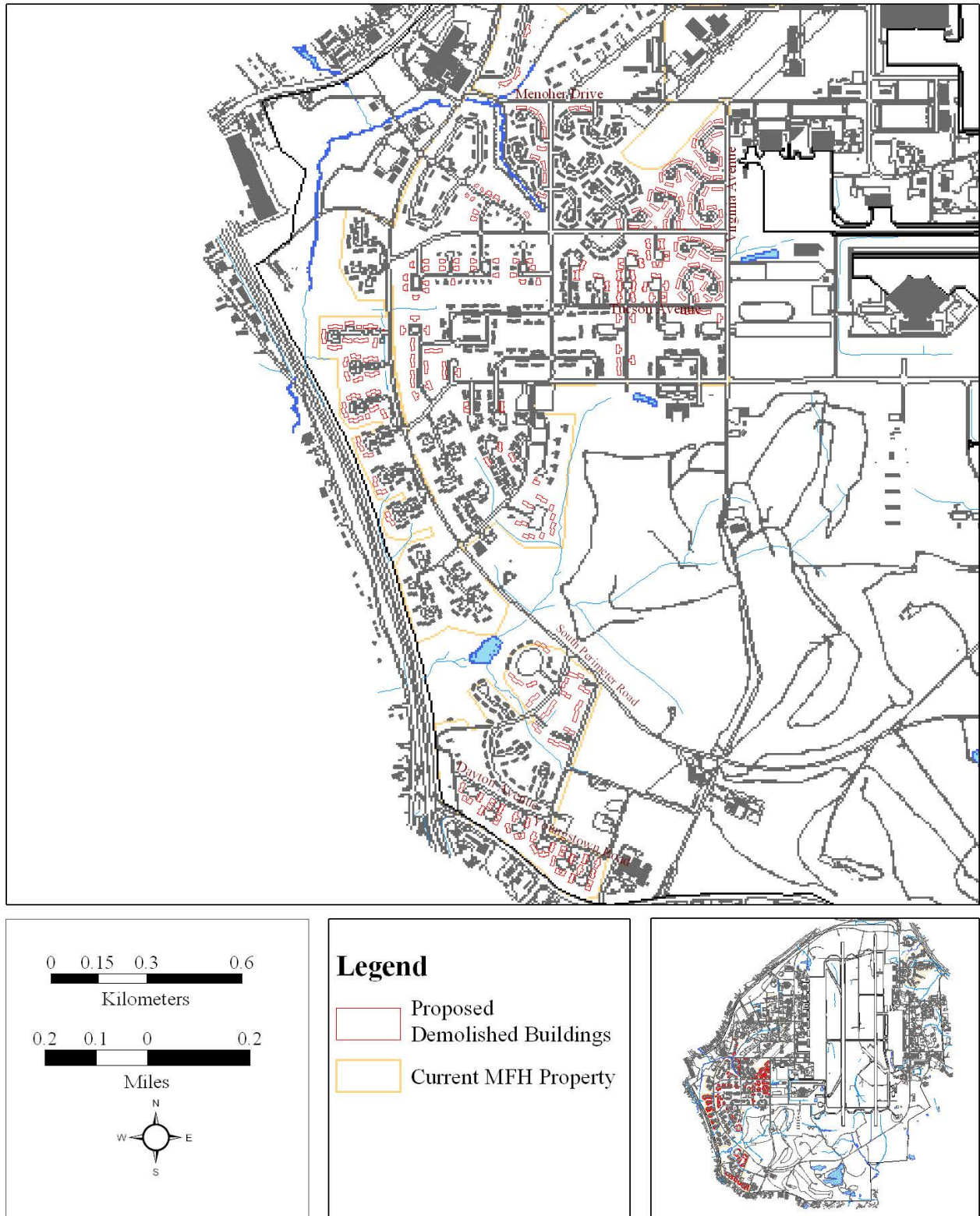
Table 2.4-1				
New MFH Construction				
Neighborhood	Number of Units			
	GOQ	SOQ	GFOQ	Total
Columbus Circle		11	23	34
Command Lane	6			6
Vandenberg	4	12		16
Total	10	23	23	56

(GOQ = General Officer Quarters; SOQ = Senior Officer Quarters; GFOQ = General/Flag Officer Quarters)

The demolition of housing units would open land on Andrews AFB for potential new land uses including green space, light industrial, administrative, or other new uses appropriate to the operation of Andrews AFB. One location in particular, the southernmost area of housing, south of Dayton Avenue and Youngstown Road to the fenceline, would potentially be turned to green space. Another major area is located along the western side of Virginia Avenue, between Tucson Road and Menoher Drive. The demolition of housing units in this area would allow for new land uses including administrative, Air Force operations, general building space, and/or light industrial. The remaining areas of land, with housing to be demolished, would have potential land uses including green space, recreational activities including fields, parks, and pedestrian trails, community use, as well as potential uses for administrative, education, and Air Force operations.

The existing military family housing not proposed for demolition would undergo whole house or whole neighborhood renovations, creating new and improved housing for the personnel remaining on base. These renovations would include interior changes to units to accommodate the 2003 HRMA requirements of not only upgrading the facility, but also changing its internal structure. An example of this may be changing some two-bedroom units into three-bedroom units and vice versa. The goal of the proposed action would be to completely renovate each remaining unit to comply with the HRMA goal and the Air Force and 89 AW standards. Interior structure, exterior appearance, all utilities, and any other infrastructure would all be renovated.

Figure 2.4-1: Location of MFH Buildings Proposed to be Demolished



2.5 Alternative B

This Alternative would include the demolition of the housing units discussed in Alternative A and Figure 2.4-1 on the western side of Andrews AFB to meet the 2003 HRMA requirement to reduce the 1,395 surplus units. This includes demolition of a combination of single houses, duplexes, and multifamily structures with up to six units. There would be no housing or neighborhood renovations to the remaining units and no construction of new units. This Alternative would not construct new roads; renovate infrastructure or utilities, and no construction of new officer's quarters. This Alternative would not meet the Air Force's goal to provide safe, high-quality, energy-efficient, well-managed, affordable housing to military personnel and their families, as the housing units were constructed between 1946 and 1976 and are in need of renovations. This Alternative would not meet the requirements of the 2003 HRMA and HCP to accommodate housing for the proposed 1,061 units. Without construction of the 56 new units there would be a deficit of housing, as there would only be 1005 units remaining.

2.6 No Action Alternative

Under this alternative no demolition, renovation, or construction would occur. The current housing and maintenance situation would remain. The aging buildings and utilities would continue to require needed maintenance. This alternative would not meet the requirements of the 2003 HRMA and HCP to remove the surplus 1,395 units on and off-base. In order to meet the requirements of the HRMA and HCP, the surplus personnel would move off base and there would be abandoned housing units remaining on base. The CEQ regulations require that the no action alternative be analyzed to assess any environmental consequences that may occur if the proposed action is not implemented.

2.7 Alternatives Considered but Eliminated from Further Consideration

2.7.1 Complete Demolition of All Housing Areas and Replacement Housing

Complete demolition of all housing areas, followed by reconstruction was considered and eliminated. It is unrealistic to demolish all existing housing and infrastructure on the western side of Andrews AFB and then construct entirely new housing. This alternative would require the entire population living on the western side of Andrews AFB to move off-base during the period of demolition and construction.

2.7.2 Whole House Renovations Without Demolition of Existing Housing

Whole house renovations to all existing housing on the western side of Andrews AFB, with no demolition of existing housing was also considered but eliminated. Although this would upgrade the interior, exterior, and infrastructure of the housing, it would not meet the goal set by the 2003 HRMA and HCP to reduce the surplus units on and off-base.

2.8 Comparison of Environmental Consequences

Table 2.8-1 is a matrix of the potential short-term and long-term environmental impacts of Alternatives A and B and the No Action Alternative. A more detailed description of each environmental impact is discussed in Chapter 4 of the EA.

Table 2.8-1 Comparison of Alternatives			
Resource	Alternative A	Alternative B	No Action Alternative
Air Quality	Construction activities would produce minor short-term elevated air pollutants. The potential creation of new green space would produce a minor long-term decrease in air emissions. With potential industrial use on the new land, a potential long-term increase in air pollutants would be created.	Impacts would be similar to Alternative A, with less short-term elevated air pollutants because no renovations would occur.	No change in baseline conditions described in Chapter 3.2.
Water Resources	Surface Water and ground water features would not be directly impacted. There would be short-term increase in potential pollutants and soil erosion run-off into surface waters due to demolition and construction activities. In the event that 5,000 ft ² or 100 yds ³ of earth are disturbed, a sediment erosion control plan must be submitted through the MDE. Best management practices associated with Andrews AFB's Storm Water Pollution Prevention Plan should be followed. With potential creation of new green space there would be increased ground water absorption.	Impacts would be similar to Alternative A, with less short-term increase in pollutants because no renovations would occur.	No change in baseline conditions described in Chapter 3.3.
Noise	Demolition and construction activities would produce minor short-term increased noise levels. The potential creation of new green space would produce minor long-term decrease in noise levels. With potential industrial use on new land, a potential long-term increase in noise levels would be created.	Impacts would be similar to Alternative A, with less short-term increase in noise levels because no renovations would occur.	No change in baseline conditions described in Chapter 3.4.

Table 2.8-1 continued Comparison of Alternatives			
Resource	Alternative A	Alternative B	No Action Alternative
Natural Resources	Demolition and construction activities would produce short-term effects to wildlife. No threatened or endangered species, BASH Plan areas, or forest management areas would be impacted. The potential creation of new green space would produce a moderate increase in wildlife and forest areas.	Impacts would be similar to Alternative A.	No change in baseline conditions described in Chapter 3.5.
Physical Resources	Demolition and construction activities would potentially create loose sediment that could settle in surface and storm waters. In the event that 5,000 ft ² or 100 yds ³ of earth are disturbed, a sediment erosion control plan must be submitted through the MDE. Best management practices associated with Andrews AFB's Storm Water Pollution Prevention Plan should be followed. There would be no long-term impacts to base topography or geography	Impacts would be similar to Alternative A.	No change in baseline conditions described in Chapter 3.6.
Land Use and MFH Infrastructure	Demolition activities would create a major amount of new land. Approximately 71 acres of new land would be created for green space, community use, recreation, light industrial, or other Air Force Operations. Any new land use would have to meet the goals and policies detailed in the Andrews AFB General Plan. There would be improvements in utilities that are rated unsatisfactory.	Impacts would be similar to Alternative A.	No change in baseline conditions described in Chapter 3.7.

Table 2.8-1 continued Comparison of Alternatives			
Resource	Alternative A	Alternative B	No Action Alternative
Socioeconomic Resources	The demolition would force approximately 1000 people to move off-base. There would be a short-term creation of jobs during the demolition and construction. This would affect the on-base housing neighborhoods and create more gate traffic during peak traffic hours. The number of people moving off base is negligible to the population of 4.6 million in the Washington DC metropolitan area.	Impacts would be similar to Alternative A.	No change in baseline conditions described in Chapter 3.8.
Environmental Justice	There would be no significant impact on minority or low-income populations on Andrews AFB or the surrounding metropolitan area.	Impacts would be similar to Alternative A.	No change in baseline conditions described in Chapter 3.9.
Cultural Resources	No culturally significant locations would be affected. They are not in or around the location of the proposed housing demolition and construction, and would not be encroached or constructed on, and this would not change the character of the locations.	Impacts would be similar to Alternative A.	No change in baseline conditions described in Chapter 3.10.
Hazardous Materials and Waste Management	The demolition, construction, and renovation would create a short-term increase in the use, handling, and creation of hazardous materials and waste. With potential creation of light industrial activities on the new land, there would an increase in the use and creation of hazardous materials and waste. There would be potential removal of asbestos or lead from the demolished and renovated buildings, which were constructed between 1946 and 1976.	Impacts would be similar to Alternative A, with less short-term increase in hazardous material and waste use, including removal of asbestos or lead, because no renovations would occur.	No change in baseline conditions described in Chapter 3.11.

Table 2.8-1 continued Comparison of Alternatives			
Resource	Alternative A	Alternative B	No Action Alternative
Safety and Occupational Health	The demolition, construction, and renovation would create a short-term increase in working conditions that require safety and occupation health precautions. With potential creation of light industrial activities on the new land, there would an increase in the activities that require safety and health precautions.	Impacts would be similar to Alternative A, with fewer activities that require safety and health precautions because no renovations would occur.	No change in baseline conditions described in Chapter 3.12.

3.0 AFFECTED ENVIRONMENT

3.1 Introduction

This chapter describes the existing conditions that comprise the physical and natural environment within Andrews AFB and the surrounding region of influence. Descriptions of the affected environment provide a framework for understanding the potential direct, indirect, and cumulative effects of each of the alternatives.

3.2 Air Quality

Air quality defines the existing conditions that influence the quality of air and concentrations of various pollutants. The air quality at Andrews AFB is defined with respect to the standards of the CAA's National Ambient Air Quality Standards (NAAQS) to monitor and reduce the pollutants that are harmful to public health and welfare. The quality of the air is determined by comparing ambient air pollutant levels with the appropriate NAAQS value for each pollutant. NAAQS exist for six criteria pollutants; ground level ozone (O₃), particulate matter (PM₁₀) and (PM_{2.5}), carbon monoxide (CO), sulfur oxides (SO_x), lead, and nitrogen oxides (NO_x). The EPA defines the standard levels as those levels that are necessary to protect public health (MDE, 2003). Maryland has adopted the NAAQS, Code of Maryland Regulations (COMAR) Title 26, Subtitle 11, Air Quality. See table 3.2-1 for the standard values of each criteria pollutant.

Table 3.2-1 National Ambient Air Quality Standards	
Pollutant	Standard Value
Carbon Monoxide (CO)	
8-hour Average	9 ppm (10 mg/m ³)
1-hour Average	35 ppm (40 mg/m ³)
Lead (Pb)	
Quarterly Average	1.5 µg/m ³
Nitrogen Dioxide (NO₂)	
Annual Arithmetic Mean	0.053 ppm (100 µg/m ³)
Ozone (O₃)	
1-hour Average	0.12 ppm (235 µg/m ³)
8-hour Average	0.08 ppm (157 µg/m ³)
Particulate Matter (PM₁₀)	
Annual Arithmetic Mean	50 µg/m ³
24-hour Average	150 µg/m ³
Particulate Matter (PM_{2.5})	
Annual Arithmetic Mean	15 µg/m ³
24-hour Average	65 µg/m ³
Sulfur Dioxide (SO₂)	
Annual Arithmetic Mean	0.03 ppm (80 µg/m ³)
24-hour Average	0.14 ppm (365 µg/m ³)

The Maryland Department of the Environment (MDE) has determined that ground-level ozone is a major air pollution problem in the Baltimore and Washington D.C. metropolitan areas. The EPA designates the metropolitan region as a serious ground level ozone 'non-attainment area.' Andrews AFB is within Maryland's Air Quality Control Region 4, which also includes the entire metropolitan area. The 89 AW has a Title V operating permit issued for operations on the entire base. Tenant and other operations would require MDE construction or operations permits.

Table 3.2-2 Andrews AFB, 89 AW Title V Operating Permit					
	AIRS Facility Number	Permit Number	Final Permit Issuance Date	Final Permit Effective Date	Final Permit Expiration Date
Andrews AFB	24-033-00655	24-033-0655	11/30/2001	11/30/2001	1/31/2006

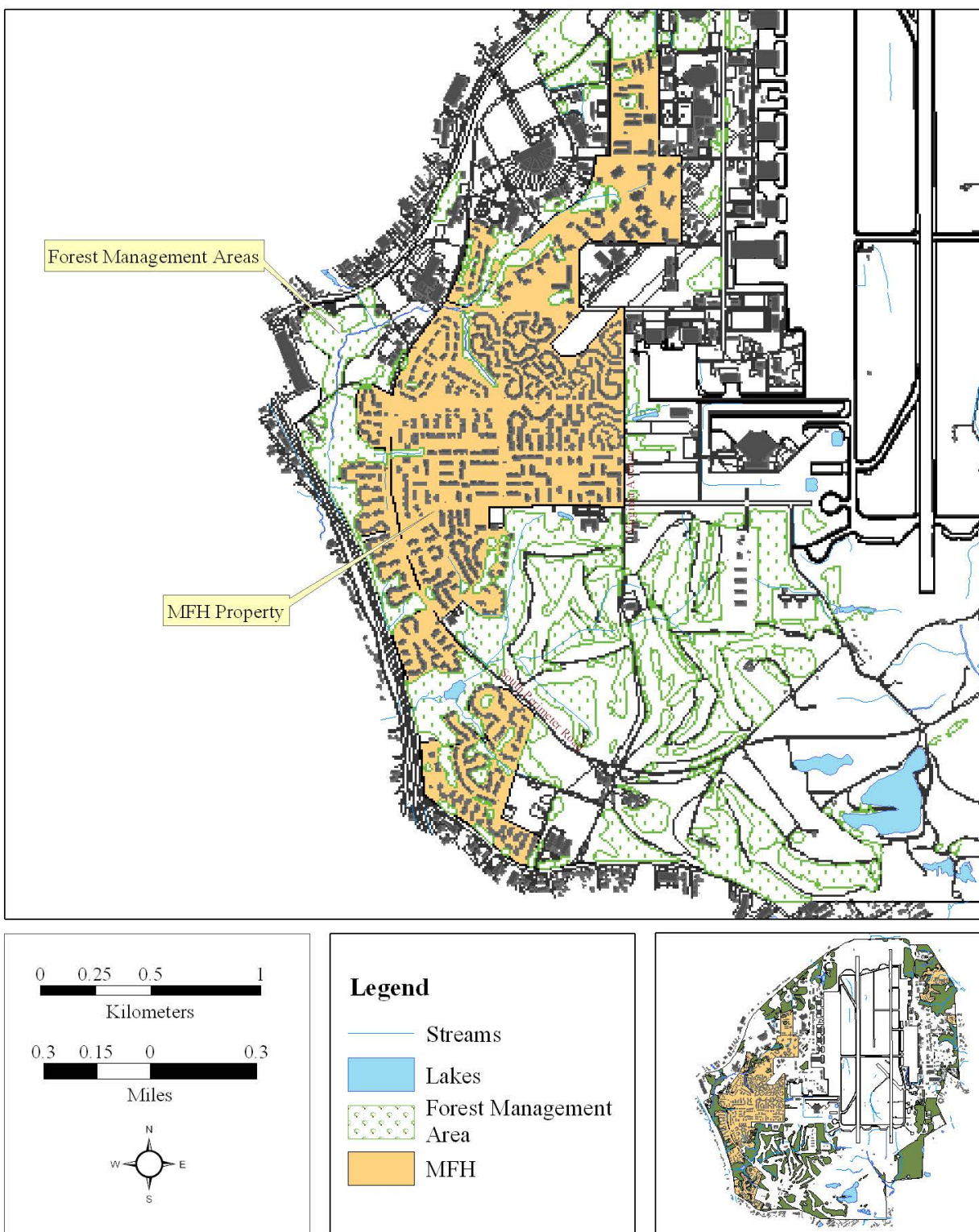
*Issued by Maryland as of 8/15/03 (EPA 2003)

3.3 Water Resources

The water resources on Andrews AFB addressed in this ea includes surface water, ground water, storm water, wastewater, wetlands, and drinking water.

3.3.1 Surface Water

Figure 3.3.1-1 illustrates the surface water and forest management areas in and around Andrews AFB. Surface waters include lakes, ponds, rivers, and streams. The majority of Andrews AFB is located in the Potomac River watershed. Because of the topography of the base as an upland terrace, higher than the surrounding landscape, several first order streams are created on or adjacent to the base. This creates a north south drainage divide along a similar location of the runway. The streams on the west side of the base, including the entire housing property covered by this ea, are in the Potomac River watershed. Paynes Branch flows through the golf course and the southern portion of the housing and Meetinghouse Branch flows through the northern and central portion of the housing. East of the divide, the streams drain eastward into the Patuxent River watershed. Andrews AFB has several small ponds. These include Base Lake and two small ponds near the golf course southern are of the base and three ponds near the Belle Chance residence.

Figure 3.3.1-1: Surface Water and Forest Management Areas in and around the MFH on Andrews AFB

3.3.2 Ground Water

Ground water at Andrews AFB ranges from depths less than 10 feet to depths greater than 900 feet, in unconfined aquifers. The base overlies several aquifers that supply water to the surrounding counties. Precipitation is the main source of groundwater recharge for the aquifers, with a general direction of movement down gradient toward local streams or downward to underlying aquifers. Aquifers in the Patapsco and Patuxent formations, which underlie Andrews AFB, consist of interbedded clay, silt, sand, and gravel and supply groundwater to the surrounding counties, including Prince George's, Anne Arundel, and Charles counties. The deep aquifers that underlie Andrews AFB and their estimated depth to the tops are, in descending order, Magothy, approximately 300 feet, Patapsco, approximately 400 feet, and Patuxent, approximately 900 feet.

3.3.3 Storm Water

Because of its housing, administration, and Air Force airfield operations, Andrews AFB's storm water runoff contains pollutants of a typical urban area, including petroleum products, fertilizers, pesticides, and de-icing salt. Seven storm water discharge points or outfalls exist on the installation. None of the outfalls exceed National Pollutant Discharge Elimination System (NPDES) benchmarks. Andrews AFB has permits for storm water discharge including Maryland General Discharge Permit No. 02-SW and General Permit No. MDR. There is no required sampling for the permit, but Andrews conducts semi-annual groundwater sampling as proactive pollution prevention measure. The base also has an up-to-date Storm Water Pollution Prevention Plan (SWPPP), which has been reviewed by the MDE. The permit and SWPPP are for industrial purposes only; they do not cover the storm water runoff of the MFH property. The storm water system for the housing neighborhoods is designed for natural runoff into the storm drains and into the surrounding surface waters.

The Environmental Flight, 89 CES/CEVQ, has produced and distributed the pamphlet Storm Water Protection at Andrews AFB for Housing Residents. The pamphlet promotes good environmental stewardship and guidelines to prevent storm water pollution in household areas including In the Garden, In the Street, Renovating, and With the Car (Andrews AFB 2003c).

3.3.4 Wastewater

Andrews AFB does not operate an on-base treatment plant. Sanitary sewage and industrial wastewater are collected and piped off-base. Wastewater on base is handled through Washington Suburban Sanitary Commission (WSSC). Wastewater on the west side of the base, including the housing, is metered and discharged to a 21-inch trunk line located west of West Perimeter Road. The wastewater from the west side is then treated at the Piscataway treatment plant at Accokeek, Maryland. The Bioenvironmental Flight samples the water semi-annually in January and April of each year. The most recent sampling was completed in September 2003 and showed no contamination or problems (Franklin 2004).

3.3.5 Wetlands

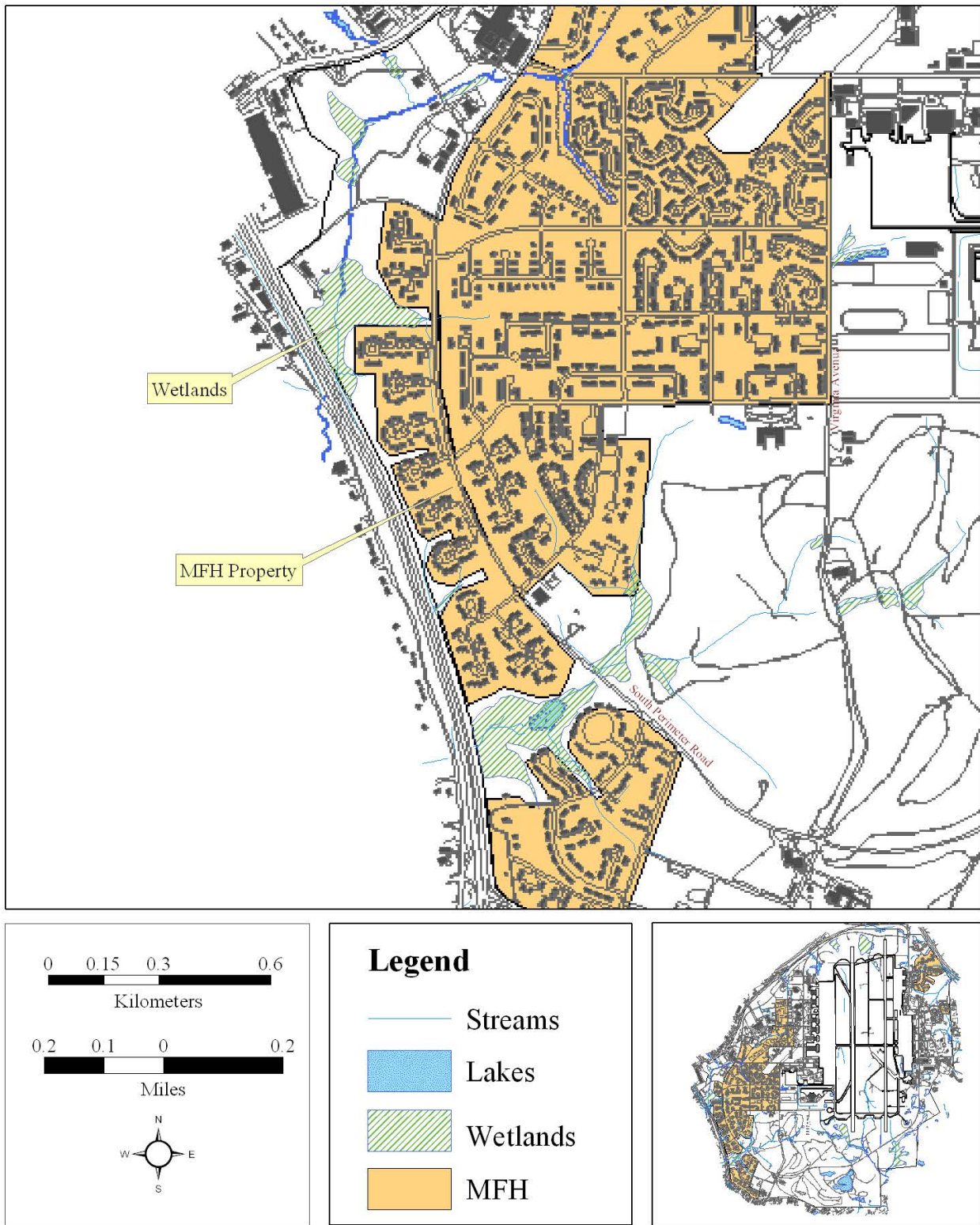
Wetlands are defined in 33 CFR 328.3 as areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal conditions do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. A wetland survey for Andrews AFB was conducted in 2003. The survey delineated 87.2 acres of jurisdictional wetlands. Five different types of wetlands were identified on the base, located in areas including adjacent to stream channels, in drainage ditches, and along the fringes of ponds and lakes. Table 3.3.5-1 identifies the different wetland types and their acreage on Andrews AFB. There are wetlands bordering the housing area, specifically along the western side of the housing. Wetlands border and dissect the western edge, but do not intrude into the housing communities. Figure 3.3.5-1 depicts the location of wetlands surrounding the housing.

Table 3.3.5-1	
Wetland Community Types, Andrews AFB.	
Wetland Community Type	Acreage
Palustrine Forested Wetland	35.967
Palustrine Scrub/Shrub Wetland	8.674
Palustrine Emergent Wetland	30.575
Palustrine Unconsolidated Bottom Excavated Pond	3.614
Palustrine Unconsolidated Bottom Pond with Beaver Activity	1.328
TOTAL	87.158

3.3.6 Drinking Water

Andrews AFB does not have its own drinking water supply. The drinking water is supplied by WSSC's main distribution network. The Bioenvironmental Engineering department samples drinking water quality monthly at 15 locations, all outside of the housing property. Sampling for copper and lead are performed every three years in the housing property, with the latest sampling in 2003 (Franklin 2004).

Figure 3.3.5-1: Wetlands Adjacent to MFH on Andrews AFB



3.4 Noise

The noise environment is a measure of the resulting cumulative noise exposure from the aircraft operations at Andrews AFB. The noise exposure is measured as a day-night average sound level (DNL), which takes into account the time of day that events occur. Noise that occurs between 10:00 PM and 7:00 AM is weighted more heavily than noise during the day due to the difference in human noise perception during nighttime. Noise levels within the 65 decibel A-weighted (dBA) contour are similar to an urban environment and within the 75 dBA contour would be similar to the downtown area of a major city.

Andrews AFB experiences a high amount of noise as a result of the use and maintenance of aircraft at the airfield. DNL of 65 - 85 dBA have been mapped in the Air Installation Compatible Use Zone (AICUZ) Study, 1998. The noise contours generally follow the north-south alignment of the airfield runways. The noise level for the existing housing property on the west side of the base is situated outside, (less than) the 65 dBA contour (Andrews AFB 1998). The housing on the west side of the base is located a safe distance away from the higher noise levels near the airfield. Figure 3.4-1 provides current noise contours at Andrews AFB.

3.5 Natural Resources

The natural resources on Andrews AFB consist of the natural plant and animal species and their habitats and relation to the base. Recognition and preservation of ecological resources on Andrews AFB provides environmental value, as well as recreational and aesthetic value. The resources discussed for this EA include vegetation and wildlife management areas and threatened or endangered species.

3.5.1 Vegetation

Approximately 80 percent of Andrews AFB's grounds are developed or intensely managed and landscaped, including recreational fields, golf course fairways and greens, and manicured lawns and gardens (Andrews AFB 2003a). This creates fragmented, small, or narrow unimproved naturally vegetated areas. These forested areas contain mixed forests of hardwood, pine, oak, red maple swamp, as well as shallow emergent marsh. The estimated tree density ranges from 79 trees per acre for predominantly large diameter trees to 490 trees with predominantly small diameter trees (EQR 1997). Andrews AFB has identified Forest Management areas, which surround and dissect the housing area. The Forest Stewardship Plan and Urban Management Plan, approved by the Maryland Department of Natural Resources, are in place to properly manage the forests on base. Native species would be used to replace any removal or destruction of vegetation, as well as any new landscaping or planting. Figure 3.3.1-1 provides a map showing the forest management areas in and around the housing.

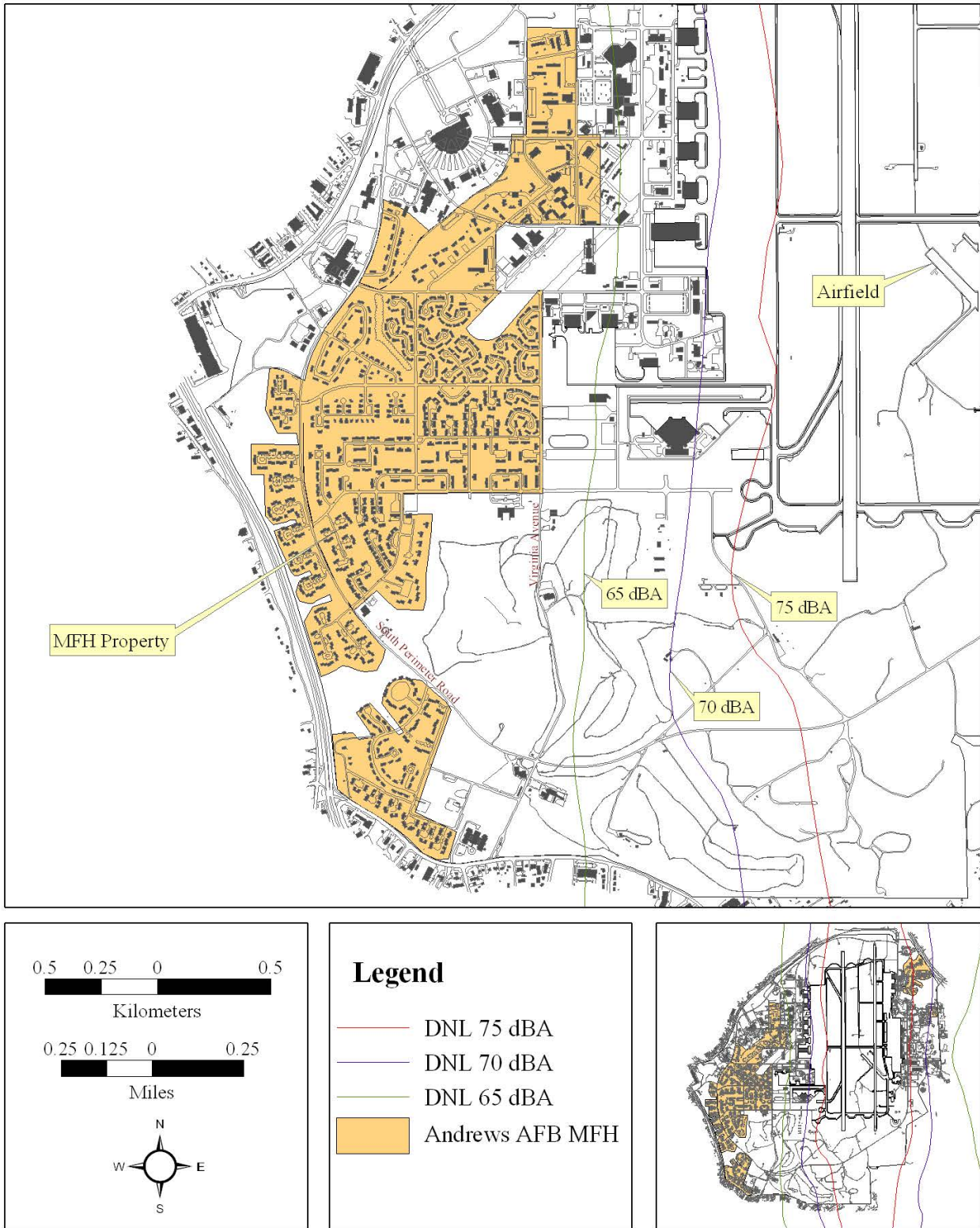
3.5.2 Wildlife

Andrews AFB contains a variety of bird species, both raptors and non-predator, resident and migratory. Due to the conflict of birds and aircraft sharing the same air space, Andrews AFB has developed a Bird-Wildlife Aircraft Strike Hazard (BASH) Plan to manage the issue of the

numerous bird-aircraft strikes. The BASH Plan identifies vegetation management areas and water bodies that attract birds. The plan identifies Base Lake, the two hollow pit lakes on the golf course, and the ponds at the Belle Chance residence, all of which are located outside of the housing on the west side of the base. The 89 AW has obtained a depredation permit from the U.S. Fish and Wildlife Service to reduce the number of geese and deer on the base.

3.5.3 Threatened or Endangered Species

The threatened or endangered species refers to a species that has been federally recognized as threatened or endangered by the ESA of 1973 or has been proposed endangered or threatened. This would also include a state endangered extirpated, endangered, threatened, and in need of conservation species established by COMAR 08.03.08 Maryland also recognizes status uncertain, highly rare, rare, and watch list species. There are no threatened or endangered animal species identified on the base. Bald eagles have been spotted, but they have been identified as transient sightings and no bald eagle nests have been identified on the base. There are 22 rare, threatened, or endangered plant species identified on base, with *sandplain gerardia* the only federally listed species. The *sandplain gerardia* is not present in proposed project area

Figure 3.4-1: Andrews AFB Day-Night Noise Level Contours and their relation to the MFH

3.6 Physical Resources

Andrews AFB physical resources include the topography, soils, and geology. The base topography is a nearly level upland terrace, higher than the surround landscape, elevation centering around 260 feet. The topography is consistent with the Inner Coastal Plain physiographic province, where the base is located. The soil of the Coastal Plain is composed of thick unconsolidated sediments of sand, gravel, clay, and marl. The sediments have been reworked by fluvial action and in areas where the streams have dissected through the layers of sediment; the lower portions of soil and older crystalline bedrock may be exposed. The lower portion of the sediment layer is the Calvert Formation, Miocene period (Andrews AFB 2003a). Most of the base has been disturbed and reworked by fill material during construction on base. This includes the housing property, which has been reworked to accommodate the housing, roads, and other infrastructure required in constructing a housing development. Andrews AFB has a Sediment and Erosion Control Plan to limit the runoff of the disturbed sediment and soil during construction projects. The plan has been submitted through the state as part of the Code of Maryland Regulations, COMAR 26.09.01.

3.7 Land Use and Military Family Housing Infrastructure

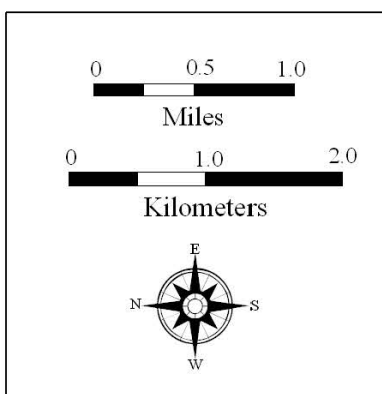
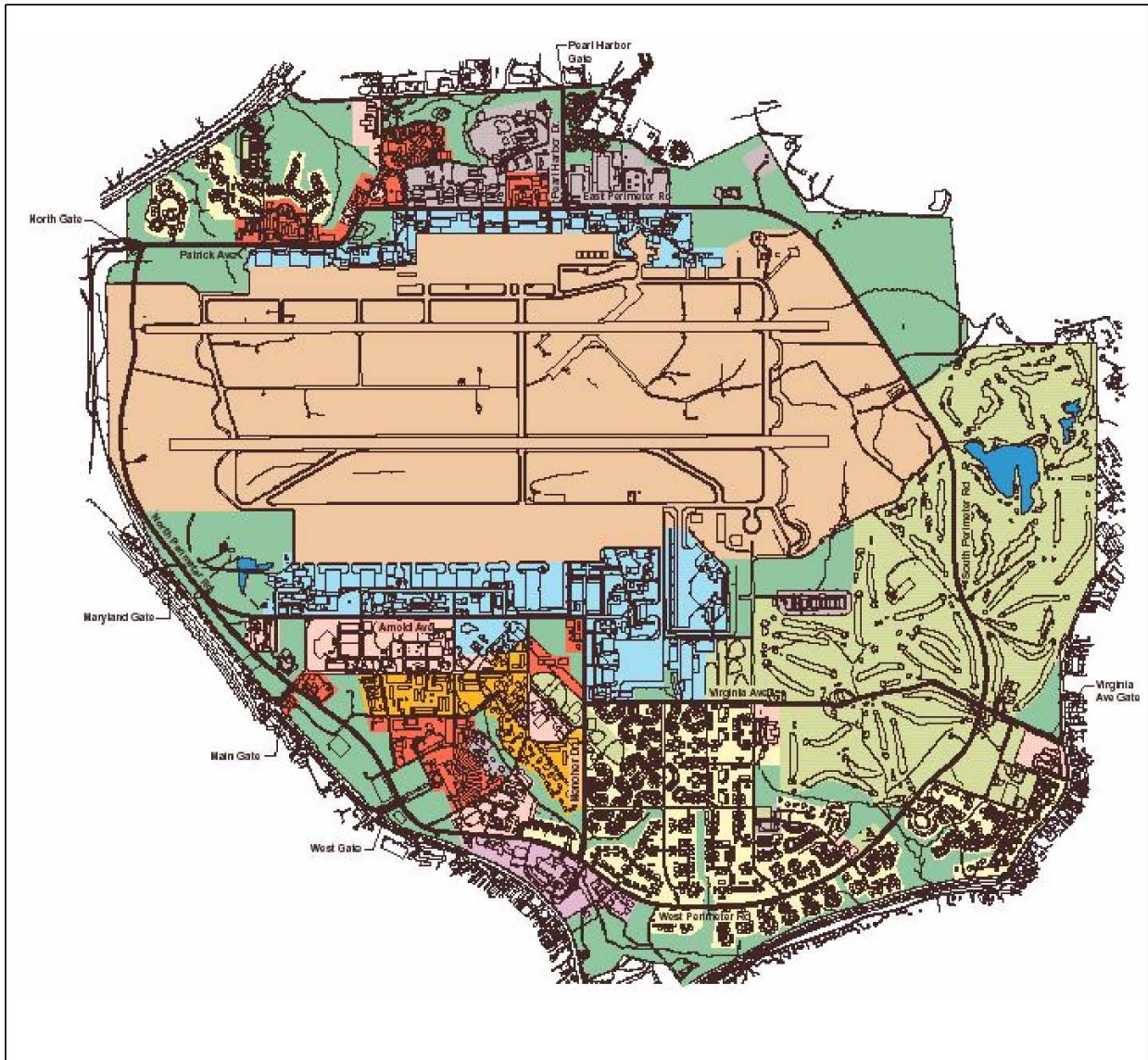
Land use on Andrews AFB describes the activities and management of the various plots of land on the base. Military family housing, recreation, and Air Force operations are a few of the land uses on base. The infrastructure in this section focuses on the housing on the west side of the base, including the 2003 housing requirements and utility usage.

3.7.1 Land Use

The land uses on Andrews AFB consist of administration, airfield, aircraft operations and maintenance, community (banks, clubs, educational services, library, chapel, and child development), accompanied housing, which includes the housing, unaccompanied housing (which includes dorms and visiting quarters), industrial, medical, open space, outdoor recreation, and water. The housing property on the west side of the base is considered housing, but has recreational and community use adjacent to it. Outdoor recreation comprises a major portion of land on Andrews AFB, 728 acres, particularly the three 18-hole golf courses in the southwest portion of the base. Other recreational land uses include the soccer/football, softball, and baseball fields, tennis courts, swimming pools, and running trails, including a running trail through the housing. The running trail passes through the housing.

Figure 3.7.1-1 is a map of the current land use at Andrews, AFB. The map was taken from Andrews AFB 2003 General Plan.

Table 3.7.1-1 provides the estimated acreage of existing land uses at Andrews AFB, Maryland (Andrews AFB 2003a).

Figure 3.7.1-1: Current land use of Andrews AFB.**Legend**

 Administrative	 Industrial
 Aircraft Operations and Maintenance	 Medical
 Airfield	 Open Space
 Community	 Outdoor Recreation
 Housing (Family)	 Water
 Housing (Unaccompanied)	 Major Road

Map was adapted from Andrews AFB 2003 General Plan (Andrews AFB 2003a).

Table 3.7.1-1 Land Use Acreage at Andrews AFB, Maryland	
Land Use	Acres
Administrative	127
Aircraft Operations and Maintenance	365
Airfield	1,518
Community	135
Housing (accompanied)	423
Housing (unaccompanied)	82
Industrial	143
Medical	47
Open Space	756
Outdoor Recreation	728
Water	22
Total	4,346

3.7.2 Military Family Housing Infrastructure

The Andrews AFB 2003-2008 HRMA and HCP have set guidelines pertaining to number of housing units that are available to Andrews' personnel between 2003 and 2008. In 2003, there are 2,456 total housing units on and off base. The HRMA requires Andrews AFB maintain a floor requirement, which is the minimum housing assets required for the installation by policy determination, of 1,002 from 2003 through 2008, a current surplus of 1,454 units. In 2003, the requirement states a private sector housing shortfall of 51 for a total housing requirement of 1,053.

Table 3.7.2-1 shows the personnel requiring housing at Andrews AFB in 2003 and 2008.

Table 3.7.2-1 Personnel Housing Requirements					
Personnel Requiring Housing, 2003					
	Accompanied Personnel	Military Couples	Voluntary Separations	Military Families	Unaccompanied Personnel
Officers	206	51	5	826	343
Enlisted	2,547	149	18	2,380	1,940
Total	3,429	200	23	3,206	2,283
Personnel Requiring Housing, 2008					
	Accompanied Personnel	Military Couples	Voluntary Separations	Military Families	Unaccompanied Personnel
Officers	881	51	6	824	343
Enlisted	2,532	148	17	2,367	1,929
Total	3,413	199	23	3,191	2,272

Table 3.7.2-2, shows the MFH Floor Requirement, 2008 for the total military community at Andrews AFB, including key and essential personnel, historic housing, and the quality of life requirements on the basis of pay grade.

Table 3.7.2-2 MFH Floor Requirements				
Number of Bedrooms				
	Two	Three	Four+	Total
Officers	31	35	16	102
Enlisted	768	108	24	900
Total	799	143	60	1,002

The housing infrastructure also includes the various utilities to maintain the housing community, electric, gas, sewer, and water. The annual housing utility costs are \$4,917,494.00 (Ewell 2003). The breakdown includes:

- Electricity: \$2,252,530.00
- Gas: \$1,008,810.00
- Sewer: \$953,743.00
- Water: \$702,411.00

According to the Andrews AFB General Plan, discussions with utilities personnel, the current supply of electricity from Potomac Electric Power Company is considered adequate for existing demands. The overall rating for the system is unsatisfactory (Andrews AFB 2003a). The May

2002 Andrews AFB Infrastructure Assessment discovered various shortfalls and system breakdowns and therefore requires frequent maintenance to loose connections. The existing housing property has old overhead distribution lines and transformers. According to the AAFB General Plan, a program is underway to begin relocation overhead lines in the housing area to underground lines, completion scheduled for 2010.

The heating and cooling system was rated as unsatisfactory, according to the Infrastructure Assessment. The annual natural gas consumption of Andrews AFB in 2002 was approximately 6,390,637 CCF (hundred cubic feet). Housing units consumed an average of 468 CCF per day during the summer months and the housing units consumed 7,180 CCF per day (Andrews AFB 2003a).

The Infrastructure Assessment rated natural gas lines on base adequate. The gas lines running underground throughout the housing property connect with Washington Gas and Light Company's service line, which parallels the base fenceline adjacent to the housing.

According to the Infrastructure Assessment, the water supply and distribution system as well as the sanitary sewer, were rated unsatisfactory. This is the existing water system that services the base, which is purchased by WSSC. The proposed action would replace the unsatisfactory system with a new system. The Andrews AFB Bioenvironmental Flight currently carries out the Air Force requirement to monitor the water system (Franklin 2003).

3.8 Socioeconomic Resources

The socioeconomic resources section describes the population, employment, and housing relationship of Andrews AFB and the surrounding area.

3.8.1 Population

Andrews AFB is located in the Washington, DC metropolitan area, with a 2002 population of 4,638,614 in the District of Columbia and surrounding communities in Maryland and Virginia (HRMA 2003). There has been an overall population increase in the metro area of nearly 650,000 people since 1990; this includes increases in surrounding Maryland and Virginia and a decrease in population in the District of Columbia.

Table 3.8.1-1 provides the 2002 Population of Washington DC Metropolitan Area, Percent Population Change from 1990 population, and Employment Change, 1990-2000. (Surrounding Maryland includes Anne Arundel, Calvert, Charles, Howard, Montgomery, and Prince George's Counties. Surrounding Virginia includes Arlington and Fairfax Counties and the Cities of Alexandria, Fairfax, and Fall Church.)

Table 3.8.1-1 Population and Changes			
Area	2002 Population	% Population Change from 1990	Employment Change, 1990-2000
District of Columbia	570,898	-5.90%	-2.10%
Surrounding Maryland	2,716,691	20.60%	17.20%
Surrounding Virginia	1,351,025	19.60%	23.40%

Table 3.8.1-2 shows the demographic percentages for Maryland, Washington, DC, and Prince George's County.

Table 3.8.1-2 Demographic Percentages			
Demographics (%)	Maryland	Washington, D.C.	Prince George's County
White	64	63	27
Black	27.9	26.2	62.7
Asian	4	5.3	3.9
Other	4.1	5.5	6.4
Hispanic Origin	4.3	6.4	7.1

Andrews AFB is located in Prince George's County, southeast of the Washington, DC, which had an estimated 2001 population of 816,791, a 1.9% increase measured between April 1, 2000 and July 1, 2001 (USCB and <http://www.co.pg.md.us/>, 2003a). The Housing Market Area for Andrews AFB extends beyond Prince George's County comprising the area within a 60-minute commute from the installation's headquarters during peak traffic periods. This off-base living area extends north of Washington, DC into the southern Baltimore Metro area into Severn and Columbia, Maryland. The Housing Market Area extends northwest into Rockville and Potomac, MD; to the west into parts of Fairfax, VA; the eastern boundary is the delineated by the coast of the Chesapeake Bay; and to the south incorporating Indian Head Naval Surface Warfare Center and the towns of La Plata, Hughesville, and Huntington, Maryland. This incorporates nearly the entire Washington DC metropolitan area (Andrews AFB 2003b).

3.8.2 Employment

The leading employment industries in the metropolitan area are Services, Civilian Federal Government, Retail Trade, Finance, Insurance, Real Estate, and State and Local Government. Services are the leading employer in the entire metropolitan area, Federal Government is second in the District of Columbia, and Retail Trade is second in both Suburban Maryland and Virginia. Similar trends exist for employment growth than for population change in the metropolitan area between 1990 and 2000. Since 1990, Surrounding Virginia had an overall employment increase of 23.4 percent, Maryland increased 17.2 percent, and the District of Columbia decreased 2.1 percent. Table 3.8.1-1 shows the mirroring relationship between population and employment

change. Andrews AFB is a major source of employment in Prince George's County, as of September 30, 2002, 7,195 people employed by Andrews AFB. Of this total, 5,565 are military personnel, 73 percent, and the remaining 1,630 are DoD civilian personnel (Andrews AFB 2003a).

3.8.3 Housing

Andrews AFB personnel live on and off-base, off-base in Air Force housing in the Summerfield housing development and in private housing. The HRMA changed the current 30-minute commuting radius for personnel living off base to a 60-minute commuting radius. This allows for a larger range of housing possibilities. Andrews AFB personnel are allowed the Basic Allowance for Housing that is detailed, by rank, in Table 3.8.3-1.

Table 3.8.3-1 represents the 2003 annual BAH that Andrews AFB personnel are issued to acquire housing off-base.

Table 3.8.3-1	
Basic Allowance For Housing	
Pay Grade	BAH
O7+	\$28,464
O6	\$28,140
O5	\$27,912
O4	\$26,929
O3	\$23,952
O2	\$20,664
O1	\$16,524
E9	\$24,636
E8	\$23,220
E7	\$21,936
E6	\$20,772
E5	\$15,984
E4	\$14,880
E3	\$14,880
E2	\$14,880
E1	\$14,880

3.9 Environmental Justice

Environmental Justice is the fair treatment for people of all races, cultures, and incomes, regarding the development of environmental laws, regulations, and policies. EO 12898 (Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, February 1994) requires federal agencies to “make achieving environmental justice part of its

mission by identifying and addressing, as appropriate, disproportionately high human health or environmental effects of its programs, policies, and activities on minority populations and low income populations.” A memorandum from the President concerning EO 12898 stated that federal agencies would collect and analyze information concerning a project’s effects on minorities or low-income groups, when required by NEPA. If such investigations find that minority or low-income groups experience a disproportionate adverse effect, then avoidance or mitigation measures are to be taken.

Table 3.8.1-2 details the demographic of Maryland, Washington, DC, and Prince George’s county. Prince George’s county, where Andrews AFB is located, has a 62.7 percent black population, compared to 27.9 percent black in Maryland and 26.2 percent black in nearby Washington, DC. The remaining population of Prince George’s county is 27 percent white, 7.1 percent Hispanic or Latino, 3.9 percent Asian, and 6.4 other races. Prince George’s county had a median household money income in 1999 of \$55,256, with a per capita money income of \$23,360. The Department of Health and Human Services (HHS) issues guidelines of the poverty thresholds. In 2003, the poverty guideline for a family of two in the 48 contiguous states and the District of Columbia is \$12,120. For a family of four, it is \$18,400 (HHS 2003). As of 1999, there was 7.7 percent of the population living below poverty in Prince George’s county (USCB 2003b). This is below the 2000 national poverty rate of 11.3 percent in 2000 (USCB 2003c).

3.10 Cultural Resources

The cultural resources described in this section include any historical, or archaeological sites on Andrews AFB and their relationship to the housing on the west side of the base. Two locations on base have been nominated to the National Historic Preservation Commission (NHPC), the Belle Chance residence and Chapel II. The chapel had sustained substantial loss of integrity and was determined to be ineligible, while the Belle Chance site remained. Neither site is located near or adjacent to the housing on the western side of the base.

A large portion of Andrews AFB has undergone reshaping of the landscape and therefore has limited archaeological significance. A Phase I archaeological survey was conducted on 140 acres of relatively undisturbed land and three historic period archaeological sites were identified and proposed for inclusion on the National Register of Historic Places (NRHP). One site is located on the south lawn of the Belle Chance residence; this site must be protected and avoided. The archaeological sites are not located near the MFH property and do not represent a constraint to development (Andrews AFB 2003a).

3.11 Hazardous Materials and Waste Management

Hazardous materials or hazardous substances are substances that are described as explosive, gasses, flammable, oxidizers, toxic, radioactive, corrosive, or otherwise hazardous to human health. This section addresses Andrews AFB hazardous waste management, waste management in the housing, specific hazardous substances, and installation restoration sites.

3.11.1 Hazardous Waste Management

When these hazardous items are used, spent, or contaminated, they may be classified as hazardous waste. Hazardous materials, substances, and wastes, all are required to be handled, managed, treated, or stored properly by trained personnel under the following regulations, OSHA Hazardous Communication, 29 CFR 1900.1200 and 29 CFR 1926.59, Department of Transportation (DOT) Hazardous Materials, 49 CFR 172.101, and EPA, 40 CFR. Maryland has state solid waste management and resource plan regulations, COMAR, Title 26, Subtitle 04, as well as hazardous waste regulations, COMAR, Title 26, Subtitle 13.

Andrews AFB is a large quantity generator of hazardous waste under the Resource Conservation and Recovery Act. Large quantity generator generates 2,200 pounds or more of hazardous waste per month or 2.2 pounds or more of acutely hazardous waste per month. The Environmental Flight, CES/CEV, manages the hazardous waste at the various industrial locations around Andrews AFB; Building 3304 is the designated hazardous waste storage area. The Hazardous Waste Management Plan describes the procedures and details of generating, storing, and transporting the waste. All hazardous waste accumulated from the various initial accumulation points are transported to Building 3304 before being transported off base. These accumulation points are located in various industrial facilities. None of these facilities are located in the housing area. In the event of a spill of hazardous substance, Andrews AFB has a Hazardous Materials Planning and Response Plan to prevent and aid in response.

3.11.2 Military Family Housing Waste

All solid waste and recycling for Andrews AFB housing is picked up and transported by Metro Waste Corporation and hauled to Eastern Trans-Waste of Maryland Inc., 1315 First St, SE, Washington DC 20003 (Mitchell 2003). The landfill assesses and manages any hazardous waste in the housing solid waste stream as appropriate (Hammond 2003). Although hazardous waste is not federally regulated by the Environmental Protection Agency for residence, the base has an annual amnesty day where residents can turn in any household hazardous waste. Andrews AFB has a Resource, Recovery, and Recycling Program responsible for the collection and proper disposal and use of recyclable products.

3.11.3 Specific Hazardous Substances

There are certain hazardous substances that are common in older industrial and housing facilities and may be located in the housing. This section describes the presence of lead based paint, asbestos, and polychlorinated biphenyl's (PCB) in the housing area. The July 1994 lead based paint Facility Inspection sampled deteriorating paint inside 1,874 housing units to detect the Department of Housing and Urban Development (HUD) action level of 0.5 percent. This sampling determined the initial baseline for the housing units. The study found 29 percent of the units had at least 1 observable deteriorating interior surface and of these, 5 percent were identified above the 0.5 percent HUD level. The paint that exceeded the HUD level has all been remediated or encapsulated (Franklin 2003). Asbestos is only found in the housing in the insulation of the underground piping (Franklin 2003). There are no PCB's in the housing property or buildings. The remaining PCB-containing materials are from industrial sections of the base, and as of September 2003, they were being prepared for disposal (Franklin 2003).

3.11.4 Environmental Restoration Sites

The Environmental Restoration Program (ERP), formerly known as the Installation Restoration Program, was established to protect human health and the environment by addressing sites where contamination, or the release of a hazardous substance, had occurred.

Two locations exist in the housing on the west side of the base. The first is site ST19, which includes much of the housing on the west side of the base, including the Columbus Circle neighborhood. This involved the removal of underground storage tanks and installation of monitoring wells. As of September 2003, most of the sites had been closed, with only two sites, monitoring wells, remaining open. The sites are located on Oxford Road (S-34, 2171 CD) and Spokane Lane (S-38, 4795). The second location, site ST18, in the southeast portion of the housing at 2132 Richmond Drive, has also been closed. Housing building 4792, off of Yuma Road, near the intersection with West Perimeter Road in the southwest portion of the housing has an operational remediation system in the back yard (Roughgarden 2003). Figure 3.11.4-1 shows the location of the two restoration sites at Andrews AFB.

3.12 Safety and Occupational Health

Areas of safety and occupational health would include various construction and maintenance work that occurs throughout the housing property. Personal protection, operation of machinery, handling hazardous materials, and numerous other actions require the proper steps be taken to protect oneself and the surrounding people from unsafe conditions. As part of any Air Force or contracted job in the housing communities, the proper regulations are required to be followed. Personnel in individual housing units are not held responsible under the federal, OSHA, safety and health regulations. Any personnel performing occupational maintenance, demolition, or construction actions on the housing property would be subject to OSHA's safety and health regulations which include, but are not limited to 29 CFR 1910.132 General Requirements for Personal Protective Equipment, 29 CFR 1900.1200 and 29 CFR 1926.59 Hazard Communication, 29 CFR 1926 Safety and Health Regulations for Construction, 29 CFR 1910.1001 Asbestos, Tremolite, Anthophyllite, and Actinolite removal, and any other safety regulation that would be encountered during demolition, construction, or renovation.

Figure 3.11.4-1: Location of Open ERP sites in the MFH.



4.0 ENVIRONMENTAL CONSEQUENCES

4.1 Introduction

This chapter describes the environmental consequences of the implementation of Alternative A, Alternative B, and the No Action Alternative for meeting the proposed Alternatives. The environmental consequences could be positive or negative, immediate or cumulative, or direct or indirect

4.2 Air Quality

Significance Criteria

- Any impacts to air quality in attainment areas would be considered major if pollutant emissions associated with the proposed alternatives caused, or contributed to a violation of any national, state, or local ambient air quality standard, exposed sensitive receptors to substantially increased pollutant concentrations, represented an increase of ten percent or more in affected Air Quality Control Region's emissions inventory, or exceeded any significance criteria established by the Maryland State Implementation Plan (SIP).
- Impacts to air quality in nonattainment areas would be considered major if the net change in proposed pollutant emissions caused or contributed to a violation of any national, state, or local ambient air quality standard; increased the frequency or severity of a violation of any ambient air quality standard; or delayed the attainment of any standard or other milestone contained in the Maryland SIP.
- With respect to the General Conformity Rule, impacts to air quality would be considered major if emissions increased a nonattainment or maintenance area's emissions inventory by ten percent or more for individual nonattainment pollutants; or exceeded de minimis threshold levels established in 40 CFR 93.153(b) for individual nonattainment pollutants or pollutants for which an area has been redesignated as a maintenance area.

Air emissions resulting from the proposed housing renovations and construction were evaluated for the Alternatives. The evaluation criteria considered for measuring effects to air quality are based on whether the net change in pollutant emissions from implementation of the proposed action would cause or contribute to a violation of any national, state, or local ambient air quality standard; increase the frequency or severity of a violation of any ambient air quality standard; delay the attainment of any standard or other milestone contained in the Maryland implementation plan; or increase a nonattainment inventory by ten percent or more for individual nonattainment pollutant; or exceed de minimis threshold levels established in 40 CFR 93.153(b) for individual nonattainment pollutants.

4.2.1 Alternative A

During the construction and demolition phases of Alternative A, local air quality at Andrews AFB could be affected by fugitive dust emissions, by construction vehicle emissions, and by vehicular emissions from commuting activities of the workforce and suppliers. No major impacts are expected. Air emissions were calculated for the entire region based on annual releases. Emissions from implementation of the proposed action would extend over several

years; therefore emissions were allocated equally by year. A table of proposed emission calculations is presented in the Appendix. None of the emissions would exceed any air quality de minimis levels. Grading and other earthmoving activities during project construction would potentially result in the emission of fugitive dust and exhaust from vehicles and equipment; however, these impacts are of limited duration and less than major.

Construction activities under the proposed action would be of limited duration, but adverse air quality impacts may occur as a result. The specific construction equipment to be used at the project sites has not yet been identified, but diesel-powered vehicles and machinery are commonly used in the construction of this type of project. Diesel engines emit particulates, carbon monoxide and ozone precursors, and particularly elevated levels of NO₂. However, these emissions are included in the base emission inventory that is the basis for regional air quality plans. Pollutants therefore are not expected to impede attainment or maintenance of the standards in the project area. Emissions would be short-term and would vary with the level of activity, silt and moisture content of the soil, amount of soil exposure, and wind speed. Large dust particles would be expected to occur within a 200 to 800 ft radius of the construction sites; smaller particulates would remain suspended for a longer period of time and be carried a further distance based on meteorological conditions. There would be a smaller amount of dust generated from construction traffic on unpaved roads; this would be expected to be insignificant because most construction areas would have access via paved roads.

Although construction equipment emissions would be temporary and short-term, appropriate measures and best management construction practices, such as watering disturbed areas and minimizing idling time of equipment, would be taken to reduce impacts.

The effects on air quality would not be major. There would be a temporary increase in construction-related emissions during project construction. However, these emissions would be minor because of the extent and temporary nature of the construction activities. Standard operational procedures would be implemented to reduce temporary, construction-related air emissions. Andrews AFB is in a nonattainment area for federal ozone standards. However, volatile organic compounds (VOC) and nitrous oxides (NOX) emissions generated during construction and demolition activities would be below de minimis levels (100 tons/year); therefore a formal conformity determination is not required. This Alternative would also decrease the number of housing on base and potentially increase the amount of green space. The combination of less facilities and greater green space would improve the overall air quality. There would be less personal vehicles on base, due to the number of people who are required to move off base, but this would increase the commuting traffic and congestion at the main gates during peak travel hours. This Alternative may potentially create light industrial, administrative, or other Air Force operational buildings on the existing housing property along the western side of Virginia Avenue, between Tucson Road and Menoher Drive. This would potentially lead to potential short-term increase in air emissions during construction and long-term increase from the industrial and/or operation of buildings. This construction, or any other major construction, may require an amendment to the Andrews AFB Title V permit.

4.2.2 Alternative B

Alternative B would create similar changes in air quality to Alternative A, as there would be the same demolition, and the same creation and use of new land. This Alternative does not require whole renovations to existing housing, only the demolition; therefore, there would be less overall construction activity with this Alternative. That would create a minor short-term increase in emissions from use of heavy machinery.

4.2.3 No Action Alternative

The No Action Alternative, which constitutes the current baseline conditions, would mean that the air resources would remain unchanged.

4.3 Water Resources

The water resources on Andrews AFB addressed in this EA includes surface water, ground water, storm water, wastewater, and wetlands. This section describes the relationship between these resources and the proposed alternatives.

Significance Criteria

Impacts to water resources, wetlands, and floodplains would be considered significant if the proposed Alternatives would:

- Destroy, lose, or degrade wetlands (as defined by Section 404 of the CWA);
- Fill a wetland;
- Create potential damage to structures located in the floodplain;
- Cause changes to the extent, elevation, or other features of the floodplain as a result of flood protection measures or other structures being sited in or removed from the floodplain.
- Reduce water availability, quality, and use;

4.3.1 Alternative A

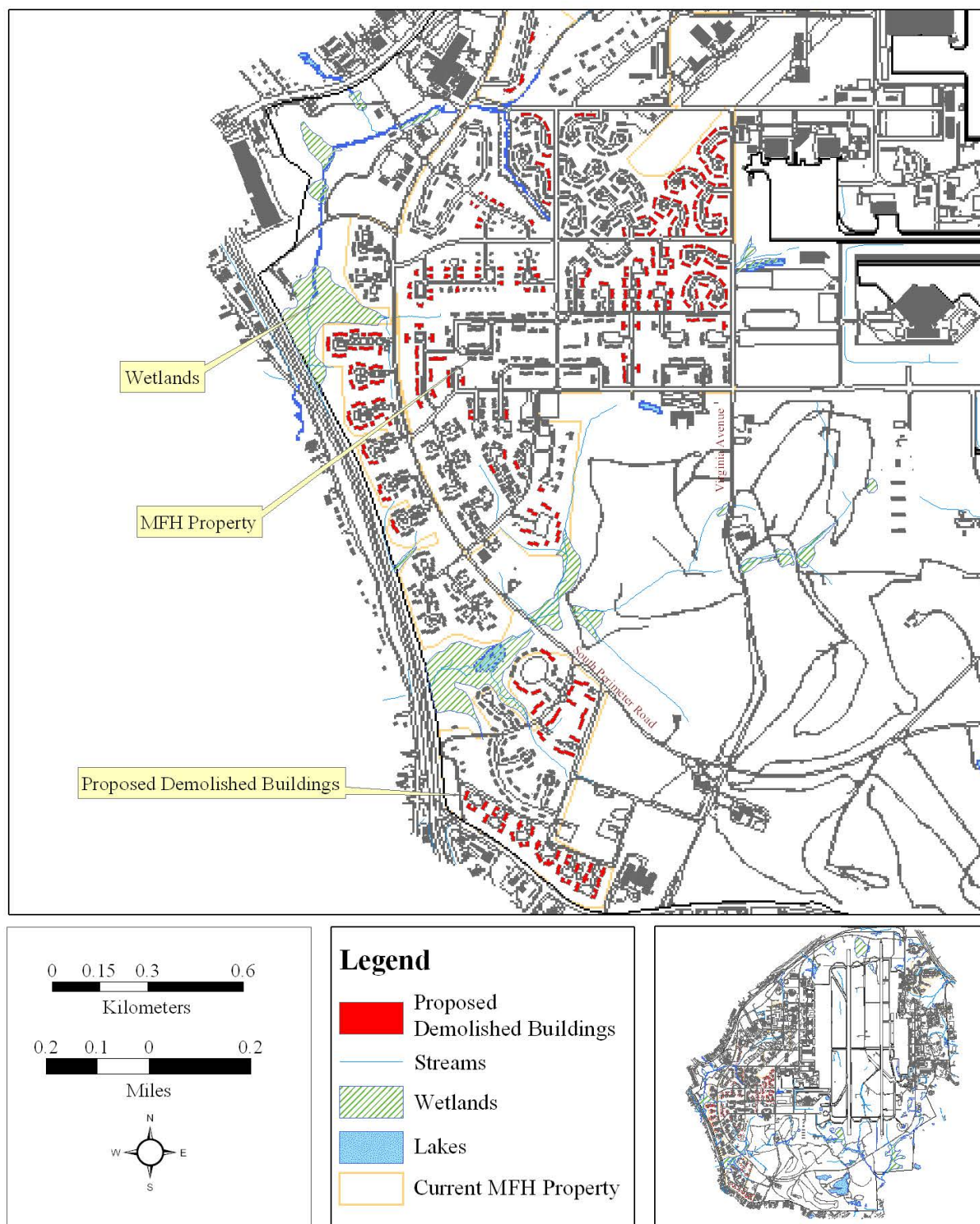
This Alternative would not directly effect (change or re-direct) the surface water systems; this includes streams, wetlands, and lakes. The streams are first order streams and consequently the base sees very little flooding. But a potential increase in green space on the southern end or eastern side of the existing housing property would change the runoff and drainage pattern, by decreasing runoff from paved roads and parking areas and increased absorption. This would create a minor positive impact the groundwater supply on base. This Alternative would create roads and housing in the Columbus Circle neighborhood and extend Oxford Road from Tuscan Drive to Menoher Drive. See Figure 3.3.1-1 for the relationship of the surface water and the existing housing. There are wetlands located adjacent to the existing housing property, but they are not located within the housing neighborhoods. The wetlands would not be directly impacted by this Alternative, although there could be minor indirect impacts from increased soil erosion and potential contamination during the construction and demolition actions. Figure 4.3.1-1

shows the location of surface water in relation to the housing property and proposed demolished buildings.

Short-term effects during the demolition, renovation, and construction projects could cause negligible to minor increase to the amount of pollutants introduced into the storm water. Construction products of this nature require heavy machinery, use of various hazardous materials, including increase fuel and lubricant use, as well as any soil pollutants disturbed and released from any excavation activity. Andrews AFB has a SWPPP in place with best management practices that should be followed for any construction that might introduce pollutants into the storm water system. Long-term effects of storm water discharge in the housing would be positive with over 200 housing buildings are being demolished, only 56 are being constructed, and the potential creation of new green space. In the event that demolition, construction, or renovation activities alter a floodplain, waterway, or wetland, an application through MDE must be submitted. If the actions of the Alternative require temporary or permanent stream crossings, a Temporary Access Crossing permit or stream crossing permit would be required by the MDE. Stream crossings have a high potential of disturbing sediment and introducing it into surface waters.

This Alternative would have a major positive impact on the drinking and wastewater systems associated with the housing property. There would be a complete replacement of the drinking water and wastewater systems in the proposed location. This would be a major improvement to both systems that were rated unsatisfactory by the 2002 Andrews AFB Infrastructure Assessment.

**Figure 4.3.1-1: Alternatives A and B - Location of Surface Water
in Relation to Proposed Demolished Buildings**



4.3.2 Alternative B

The alternative would have a similar impact on the water resources as Alternative A. The alternative eliminates the whole house renovations, which would eliminate the construction activities involved and would in turn limit potential the negligible to minor contamination of the surface and groundwater systems from the use of hazardous substances. Since there would be no whole house or neighborhood renovations, there would not be a replacement to the drinking and waste water systems. See Figure 4.3.1-1 for location of surface water in relation to proposed demolished buildings.

4.3.3 No Action Alternative

The No Action Alternative, which is the current baseline condition, would have no impacts on the water resources.

4.4 Noise

The housing on the west side of Andrews AFB experiences day-night noise levels less than 65 dBA, decibels measured on the A-weighting filter. This is a safe level, similar to noise levels in an urban environment. Items of evaluation include the level of noise generated and activity interference of the proposed and alternatives.

Significance Criteria

The following forms the basis for evaluating the significance of noise effects:

- The degree to which noise levels generated by construction were higher than the ambient noise levels;
- The degree to which there is annoyance and/or activity interference; and
- The exposure of noise-sensitive receptors to noise levels above 65 dBA

4.4.1 Alternative A

This Alternative would create minor short-term increases in noise levels from the heavy machinery use during demolition, renovation, and construction. The increased levels would not be a major impact to the noise environment. The impacts would depend on the distance of the receptor from the construction areas, the type of machinery being operated, and the duration of use of the machinery.

This Alternative would decrease the number of housing units and potentially increase the amount of green space. This would potentially create a minor long-term decrease in noise levels on the existing housing property. Figure 3.4-1 shows the location of the DNL contours in relation to the housing. There would be no change in the location of these contours in the event that new land would be converted to green space. With construction of light industrial, administrative, or other Air Force operation use, there would be the potential for moderate increased noise levels on Andrews AFB.

4.4.2 Alternative B

This alternative would similarly have minor to no major impact on the noise levels as Alternative A. This Alternative would include less construction and personnel, because of the elimination of whole house renovations, and therefore a potential of decreased noise impacts.

4.4.3 No Action Alternative

The No Action Alternative would have no major impacts to the noise environment. Under this Alternative, no new short- or long-term noise sources would be created and the Andrews AFB noise levels would not be increased.

4.5 Natural Resources

The natural resources areas on Andrews AFB include the existence of threatened or endangered plants, forest management areas, and the BASH areas. These areas would be considered significant issues if any of the Alternatives would encroach on, diminish, or interfere with the current habitats or sensitive areas.

Significance Criteria

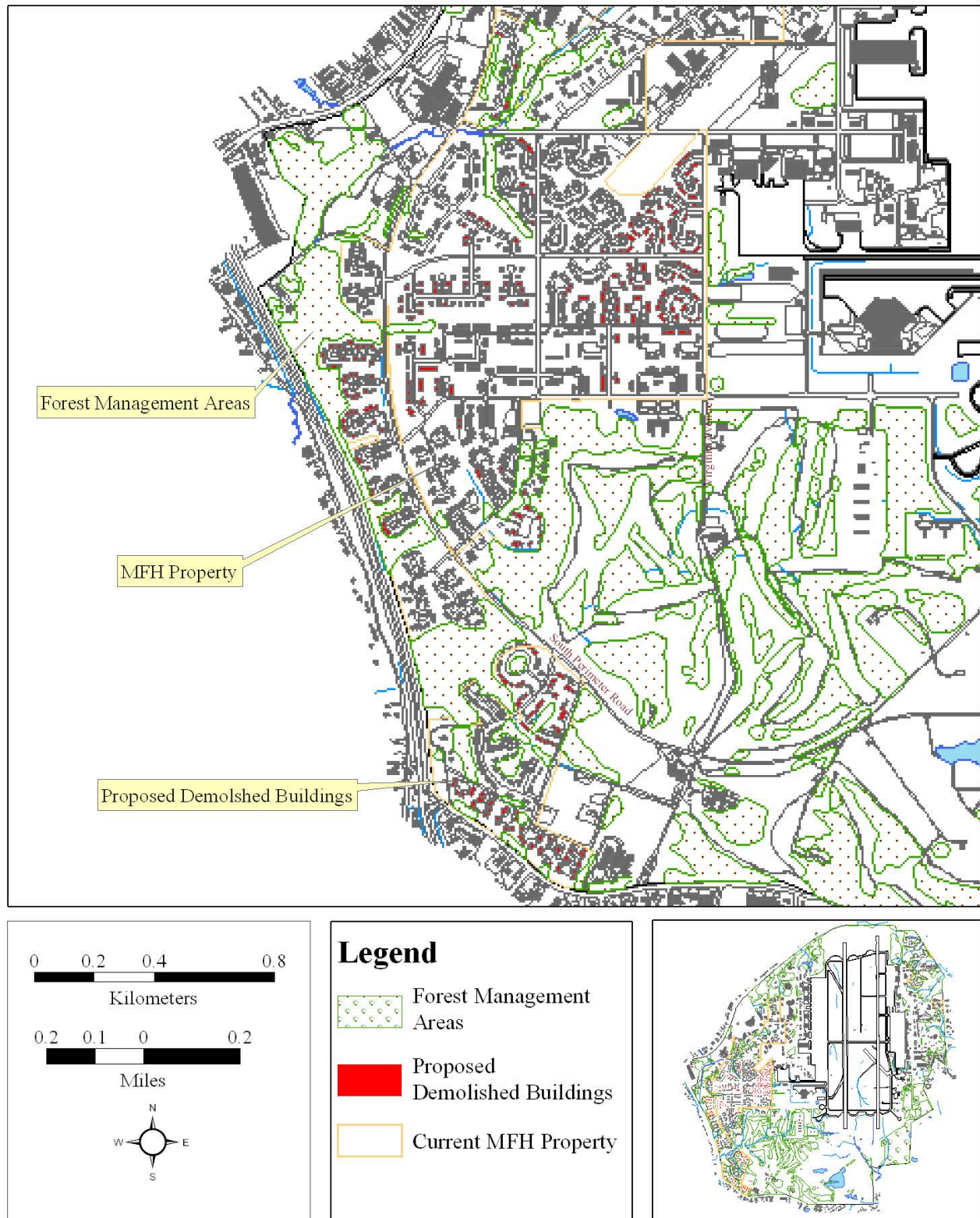
Impacts to natural resources would be considered major if the proposed Alternatives would:

- Affect a threatened or endangered species;
- Substantially diminish habitat for a plant or animal species;
- Substantially diminish a regionally or locally important plant or animal species;
- Interfere substantially with wildlife movement or reproductive behavior;
- Result in a substantial infusion of exotic plant or animal species.

4.5.1 Alternative A

The one federally listed species on Andrews AFB, the wildflowers sandplain gerardia (*Agalinis acuta*), does not grow on or near the west side housing and therefore the proposed Alternative would be no threat to it during the demolition, renovation, and construction. The BASH Plan identified vegetation management areas and water bodies that attract birds. These particular areas are not located in the housing and Alternative A would not affect any of the vegetation or water bodies listed in the BASH Plan (Harris 2003). Forest management areas on base do exist on and around the housing property and potential demolition and construction of new housing units and roads could lead to the removal of portions of these areas. Andrews AFB has a Forest Stewardship Plan and Urban Management Plan in place to properly assess this situation. In the event that portions of forest management areas are removed or destroyed, native species would be used to replace vegetation, as well as used for any new landscaping or planting. The possible creation of new green space could lead to long-term moderate increase in forest management areas.

Figure 4.5.1-1: Alternative A and B - Location of Forest Management Areas in Relation to Proposed Demolished Buildings



4.5.2 Alternative B

This alternative would have similar impact on the natural environment as Alternative A. This Alternative would have no major impact on the threatened and endangered species or BASH Plan locations. Under this Alternative, there would be no new creation of housing units or road, and therefore there would be less impact on existing forest management areas.

4.5.3 No Action Alternative

The No Action Alternative would have no major impacts on the ecological environment. Under this alternative, no new short- or long-term changes would be implemented to encroach or destroy protected species and property.

4.6 Physical Resources

Andrews AFB's physical resources, which include the topography, soils, and geology, would be significantly affected if there were substantial sediment erosion or changes in the base topography.

Significance Criteria

A soil or geological resources impact would be considered significant if it would result in one or more of the following:

- Occurrence of substantial erosion or siltation
- Substantial changes in the base topography, disturbing more than 5,000 square feet of surface area
- Occurrence of substantial land sliding
- Substantial damage to project structures/facilities

4.6.1 Alternative A

Alternative A, which includes demolition and construction of new housing and infrastructure, has the potential to create loose sediment. This could create minor to major increases in sediment erosion, which would accumulate in surface waters and the storm sewer system. There are two installation restoration sites on the existing housing property; their locations are described in Chapter 3.6. The potential of digging and re-working contaminated soil could create moderate problems associated with loose, easily eroded, contaminated sediment. Andrews AFB has a Sediment and Erosion Control Plan to limit the runoff of the disturbed sediment and soil during construction projects. The Plan has been submitted through the State as part of the Code of Maryland Regulations, COMAR 26.09.01. The plan is designed for routine operations on base; it does not cover major construction projects. Any on-base construction projects would have to meet the standards and regulations set forth in the Plan, have to take into account the location of open installation restoration sites, and may require approval of a construction soil erosion and sediment control plan.

4.6.2 Alternative B

This alternative would have a similar impact on the physical environment as Alternative A. Under this alternative, there would be no new creation of housing units or roads, and therefore there would be less sediment disturbed or reworked, creating less of a potential for soil erosion and sediment (contaminated or not) accumulation in surface waters and the storm sewer system.

4.6.3 No Action Alternative

The No Action Alternative would have no major impacts on the physical environment. Under this alternative, no construction or demolition would occur that could increase the amount of loose sediment that would be easily eroded.

4.7 Land Use and Military Family Housing Infrastructure

Land use on Andrews AFB describes the activities and management of the various plots of land on the base. Military family housing, recreation, and Air Force operations are a few of the land uses on base. This section describes the impacts on both land use and the housing infrastructure from the various Alternatives.

Significance Criteria

An impact to land use would be considered significant if one or more of the following occur as a result of the proposed Alternatives:

- Conflict with applicable ordinances and/or permit requirements;
- Nonconformance with applicable land use plans, preclusion of adjacent or nearby properties being used for existing activities; or
- Conflict with established uses of an area

4.7.1 Alternative A

This Alternative, with the demolition, renovation, and construction, would create a major change to land use on the western side of Andrews AFB. This would keep most of the existing housing property for housing and its related use. Because of the demolition of 242 housing buildings, the proposal would decrease the amount of housing property from 423 acres to 352 acres. The land created by the demolished buildings would create approximately 71 acres of new land for potential green space, recreational activities, community use, as well as potential uses for administrative use or Air Force Operations. The southernmost area of housing to be demolished, south of Dayton Avenue and Youngstown Road to the fence line, would potentially be turned to green space, as may the area of housing along the western side of Virginia Avenue, between Tucson Road and Menoher Drive. These would be substantial new areas of land use and if turned to green space, this would create approximately 49 acres of new green space on base. Approximately 15 acres would be created in the area south of Dayton Avenue and 34 acres between Tucson road and Menoher Drive. The area between Tucson Road and Menoher Drive may also be used to create new land use for purposed including administrative buildings, Air Force operations, general building space, and/or light industrial.

Alternative A would not create a conflict of land use, as new land is actually being created from the demolition. No matter the use, there are several potential sources except for new housing; there would be no impact on the Air Force's mission, the air space, or airfield. Andrews AFB strives to achieve desired land use relationships to optimize existing land use and improve functional efficiency, quality of life, and aesthetics. The proposed land uses generally meet these goals with a few exceptions. The creation of new green space, also considered open space, in any of the new land use areas is considered closeness essential, normally close, or compatible with all other land uses on base. The potential creation of administration buildings is considered normally separate from the airfield. This does not present a conflict, as all new land use areas are separate from the airfield. The potential for light industrial use in the area between Tuscan Road and Menoher Drive would present a conflict as Andrews AFB's General Plan states that industrial is normally separate from housing. This does not rule out the creation of industrial use, but it is a deterrent. Aircraft operations and maintenance is also considered normally separate from the housing areas (Andrews AFB 2003a). Figure 4.7.1-1 highlights the areas that will have new land uses, as well as the buildings proposed to be demolished.

Figure 4.7.1-1: Alternatives A and B - Location of Proposed New Land Use Areas and Buildings to be Demolished

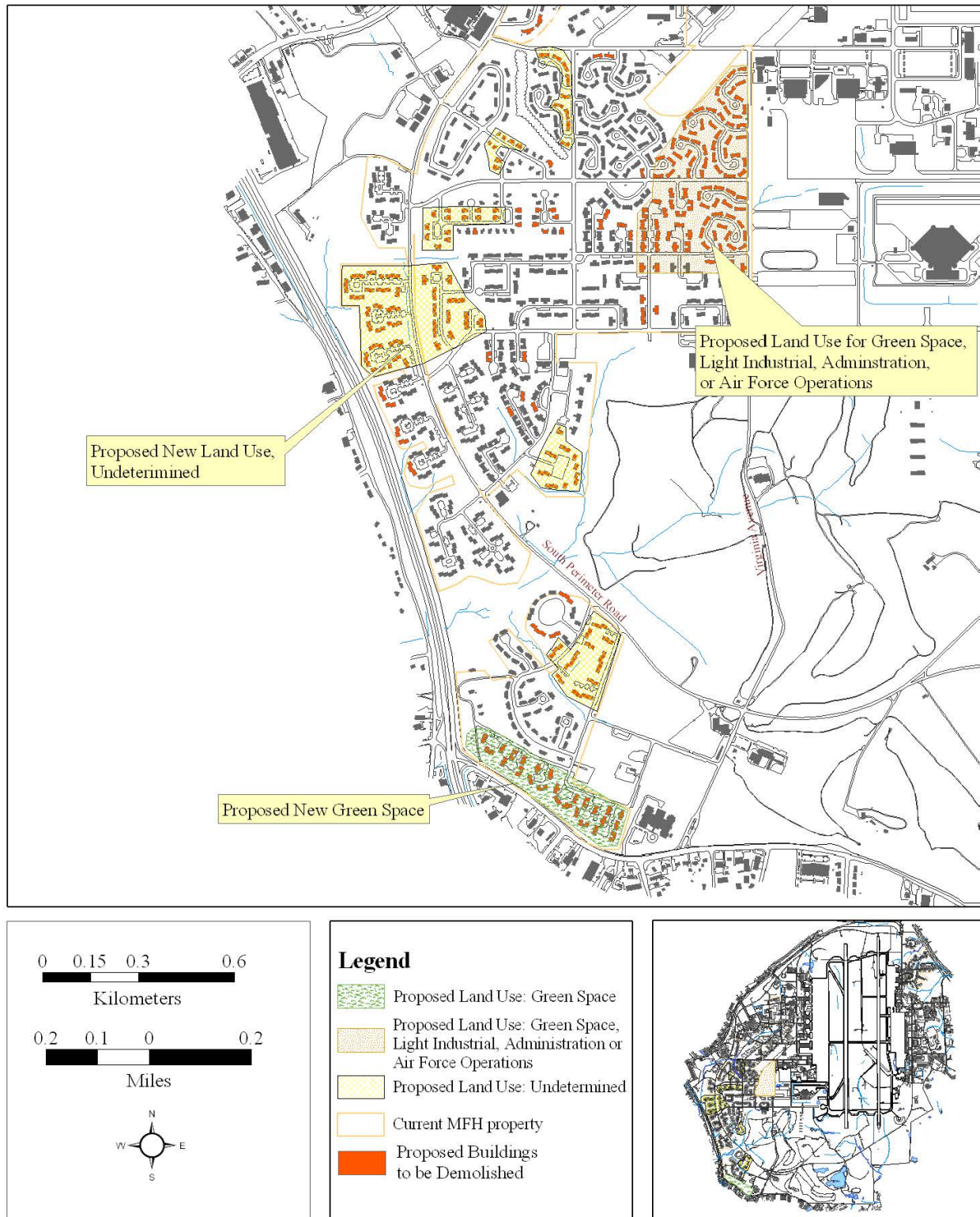


Table 4.7.1-1 Proposed New Land Use Acreage at Andrews AFB, MD	
Land Use	Acres
Administrative	127
Aircraft Operations and Maintenance	365
Airfield	1,518
Community	135
Housing (accompanied)	352
Housing (unaccompanied)	82
Industrial	143
Medical	47
Open Space	756
Outdoor Recreation	728
Water	22
Proposed New Land Use	71
Total	4,346

The Andrews AFB 2003-2008 HRMA and HCP have set guidelines pertaining to the number of housing units that are available to Andrews' personnel between 2003 and 2008. In 2003, there are 2,456 total housing units on and off base. The HRMA requires Andrews AFB maintain a floor requirement, which is the minimum housing assets required for the installation by policy determination, of 1,002 from 2003 through 2008, a current surplus of 1,454 units. In 2003, the requirement states a private sector housing shortfall of 51 for a total housing requirement of 1,053. The proposed Alternative meets the goals set in the HRMA to reduce Andrews' housing and have personnel move off base into private housing, utilizing the base allotment for housing.

Alternative A would create moderate to major long term decreases in the utility usage for the housing. As the number of housing units is reduced, the amount of water, gas, electric, and sewer usage would be majorly reduced, which in turn would save a large amount of money. This Alternative would reduce the number of units nearly 60 percent, this in turn, will reflect in a similar reduction in housing utility costs. In 2002, the annual housing utility costs were \$4,917,494.00. A 60 percent reduction would save \$2,950,496.40. Although the utility expenses in the housing property would be reduced, potential creation of light industry, administrative buildings, community use, or other Air Force Operations may increase overall utility use compared with the current usage. Although the costs of utility usage may increase or decrease, depending on the new land use, this would not create a negative impact to the environment of Andrews AFB.

The Andrews AFB Infrastructure Assessment rated the overall electrical system unsatisfactory; the heating and cooling system was rated unsatisfactory, as was the water supply and distribution system. Alternative A, which includes whole house renovations on the existing property, would provide the needed upgrade to each of these utilities on the housing property.

4.7.2 Alternative B

This Alternative would have a similar impact on land use as Alternative A. Under this Alternative, there would be the same number of buildings demolished, but there would not be any whole house renovations to the existing buildings. This would create the same amount of land available for new land use and would not affect the amount of property that would be created for the housing. Figure 4.7.1-1 and Table 4.7.1-1 would be the same for Alternative B as they are for A.

This Alternative would also be similar to Alternative A in meeting the requirements of the 2003-2008 HRMA. It states that Andrews AFB has a surplus of 1,454 units and the proposed demolition of this alternative would reduce the on base housing to meet that standard. There would be similar reduction in utility usage in the housing property and the same potential for increased utility usage from new land use such as light industry or Air Force operations.

4.7.3 No Action Alternative

The No Action Alternative would have no impact on Andrews AFB land use. Under this alternative, no construction or demolition would occur, reducing the size of the housing property and therefore no creation of land for new uses.

The No Action Alternative would not meet the goals set forth in the 2003-2008 HRMA to reduce the amount of Andrews AFB housing. There would be no major change in the utility usage of the housing as no units would be demolished or renovated.

4.8 Socioeconomic Resources

The socioeconomic resources are assessed in terms of the relationship between the population, employment, and community of Andrews AFB and the consequences the various alternatives would have on these items in the surrounding community. Andrews AFB is located in Prince George's County, in the Washington, DC metropolitan area, with a 2002 population of 4,638,614.

Significance Criteria

Socioeconomic effects are evaluated in terms of their direct effects on the local economy and related effects on other socioeconomic resources, such as housing and community services. The magnitude of potential impacts can vary greatly depending on the location and characteristics of the proposed activities.

4.8.1 Alternative A

This Alternative would require approximately 1000 people to move off-base and find private housing in the densely populated Washington, DC metropolitan area (Harris 2003). This influx of people would be a negligible to minor increase to the socioeconomic nature of the surrounding metro area. With approximately 1000 people entering into a metro area of 4.6 million people, this represents a 0.02 percent increase in the overall population. The influx would become

diluted and would not drastically impact any communities, job markets, or school districts, as personnel have the choice to live in a wide range of locations, communities, and socioeconomic environments within the 60-minute commute radius.

With this proposed Alternative there would be a short-term increase of personnel on and around the base during demolition, renovation, and construction due to creation of jobs. This would be a minor increase in the local socioeconomic resources as there would be creation of jobs and increased use of hotels and businesses surrounding the base.

4.8.2 Alternative B

This Alternative would have the same negligible impact on the Washington DC metropolitan area and a minor short-term increase in the local area surrounding the base. The same amount of personnel would be forced to move off base and find private housing, but there would be less jobs and use of local businesses, as this Alternative does not include whole house renovations of the remaining housing.

4.8.3 No Action Alternative

The No Action Alternative would have no impact on the socioeconomic resources of Andrews AFB and the Washington, DC metropolitan area. Under this alternative, no personnel would be forced to find private housing in the metro area and no jobs would be created nor increased in use of local business.

4.9 Environmental Justice

Environmental Justice is the fair treatment for people of all races, cultures, and incomes, regarding the development of environmental laws, regulations, and policies.

Significance Criteria

Environmental justice impacts would involve disproportionately high and negative human health or environmental effects on minority and low-income populations.

4.9.1 Alternative A

This Alternative would have no major impact on environmental justice of Andrews AFB or the surrounding metropolitan areas. With approximately 1000 Andrews AFB personnel moving off-base into an area with a population of 4.6 million, there would be no major impact on low income or minority populations.

4.9.2 Alternative B

This Alternative would also have no major impact to environmental justice as Alternative A. The number of personnel who would be forced to move off base would remain the same, creating the same impact as Alternative A.

4.9.3 No Action Alternative

The No Action alternative would have no impact on environmental justice. Under this alternative, no personnel would be forced to find private housing in the metropolitan area.

4.10 Cultural Resources

Cultural resources, including cultural, historical, or archaeological locations or structures, can be adversely affected by the various alternatives. The actions could physically destroy or damage the locations, introduce elements that would alter the character of the site, or diminish the site by other means.

Significance Criteria

A proposed Alternative is considered to have a potential effect on a historic property or archaeological resource when the Alternative may alter characteristics of the property that could qualify the property for inclusion in the NRHP. An effect is considered adverse when it diminishes the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Adverse effects on historic properties/ archaeological resources include, but are not limited to:

- Physical destruction, damage, or alteration of all or part of the property;
- Isolation of the property from or alteration of the character of the property's setting when that character contributes to the property's qualification for the National Register;
- Introduction of visual, audible, or atmospheric elements that are out of character with the property or alter its setting;
- Neglect of a property resulting in its deterioration or destruction; and
- Transfer, lease, or sale of the property (36 CFR 800.9[b]).

4.10.1 Alternative A

The major cultural locations, defined in Section 3.10, would not be affected by this Alternative. They are not in or around the location of the proposed housing demolition and construction, and would not be encroached or constructed. The Alternative would have no major impact, it would not change the character of the locations.

4.10.2 Alternative B

This Alternative would have the same no major impact as Alternative A. There would be no demolition near the cultural sites, and they would not experience any negative impact.

4.10.3 No Action Alternative

The No Action alternative would have no impact on the cultural locations of Andrews AFB. No demolition or construction would take place on or around the property.

4.11 Hazardous Materials and Waste Management

Federal, state, and local laws regulate the use, storage, and transportation of hazardous materials and waste. These laws are designed to protect those who are using them, the surrounding personnel, and the environment. Impacts of the alternatives may include the increase use and on-site storage of hazardous substances, the creation and removal of wastes, and the potential for a spill, or release, of these substances.

Significance Criteria

Numerous local, state, and federal laws regulate the storage, handling, disposal, and transportation of hazardous material and waste. The primary purpose of these laws is to protect public health and the environment. Potential impacts associated with hazardous material and waste would be significant if:

- The storage, use, transportation, or disposal of these substances was to substantially increase the risk to human health or exposure to the environment.
- The capacity of the base was unable to handle the volume of hazardous materials or waste.

4.11.1 Alternative A

Implementation of this Alternative would create minor to moderate short-term increases in the use of hazardous materials and the creation of hazardous waste. During the demolition, renovation, and construction processes, there would be the use and transportation of hazardous materials that would be regulated by OSHA and DOT, as well as the creation of hazardous wastes, regulated by EPA. If hazardous wastes are to be generated during this process, the organization generating the waste must request approval from the 89 AW Civil Engineering Squadron's Environmental Flight (89 CES/CEV) and deliver copies of all manifests to the 89 CES/CEV. Potential wastes generated by this Alternative include lead based paint, asbestos, and various paints, petroleum, and oil products that would be involved in demolition and construction. In the event that asbestos or lead based paint need to be removed, a plan detailing the safe removal and disposal procedures would be required. There would not be any creation of temporary accumulation points during the proposed Alternative, as the waste generated during the demolition, renovation, and construction would not be transferred to the Andrews AFB hazardous waste storage facility.

This Alternative would not create any major long-term increase or decrease in the use of regulated hazardous materials or waste managed and removed on base. Private houses are not regulated by Federal regulations to properly manage their hazardous materials and waste and the Environmental Flight only manages the hazardous waste at the various industrial points on base. But with potential creation of light industrial, administrative, or other Air Force operations, there would be an increase in regulated hazardous waste. There would be the potential for the creation of waste such as cleaners, solvents, paints, fuels, oils, and any other hazardous substance that is considered a hazardous waste when it is spent, contaminated, or unusable.

Any work performed for this Alternative would have to be in accordance with Andrews AFB Hazardous Material Management Plan, the Hazardous Waste Management Plan, and the Hazardous Materials Planning and Response Plan to prevent and aid in response.

4.11.2 Alternative B

Implementation of this Alternative would have a similar minor to moderate increase in the use of hazardous materials and creation of hazardous wastes. Personnel and organizations performing the work would have to take the same precautions and work within the laws and regulations governing their hazardous materials and waste. Under this Alternative, there would be less hazardous material use and less hazardous wastes created, as there would be no whole house renovations.

4.11.3 No Action Alternative

The No Action alternative would have no impact in the use, storage, or transportation of hazardous materials and hazardous waste. Under this Alternative, there would be no major change in the use of hazardous materials or generation of hazardous waste.

4.12 Safety and Occupational Health

Impacts to health and safety can occur during the implementation of any of the various Alternatives if there are activities that place risk on the safety of the person performing the task and those who are affected. Steps can be taken to mitigate health and safety risks.

Significance Criteria

Numerous federal, civil, and military laws and regulations govern operations at Andrews AFB. Individually and collectively, they prescribe measures, processes, and procedures required to ensure safe operations and to protect the public, military, and property. These regulations govern all aspects of the daily activity of the base, and their applicability ranges from standard industrial ground safety requirements, such as wearing of hard hats and safety clothing, to complex procedures concerning helicopter landings and departures.

4.12.1 Alternative A

This Alternative would create potentially unsafe working conditions in and around the demolition and construction activities, include demolishing buildings, use of heavy machinery, use and removal of hazardous materials. These would be no different than unsafe conditions in any other housing construction project. The personnel and/or organization performing any demolition, construction, or maintenance on the housing property would have to work within the federal, state, and local safety and health regulations.

This Alternative would not create any long-term changes in safety or occupational health, as the federal and state safety laws would not regulate personnel living in the housing. But with potential creation of light industrial, administrative, or other Air Force operations, there would be an increase in potential unsafe working conditions and therefore, an increase in regulating safety.

4.12.4 Alternative B

Implementation of this alternative would have a similar impact to safety and occupational health as Alternative A. Under this Alternative, there would not be any whole house renovations, and therefore there would be fewer activities that could create unsafe working conditions.

4.12.3 No Action Alternative

The No Action alternative would have no change on the current safety and occupational health conditions on Andrews AFB. There would not be any change in the amount of working conditions that are required to follow the federal, state, and local laws pertaining to unsafe working conditions.

5.0 CUMULATIVE IMPACTS

NEPA requires an analysis of irreversible and irretrievable commitments of resources involved in the proposed action, or alternative, specifically, the cumulative impact on nonrenewable resources. This includes the irreversible effects from the destruction of a specific resource, such as energy or minerals. This also includes the irretrievable resource commitments involving the loss in value of resource that cannot be restored, such as the extinction of a threatened or endangered species or the loss or disturbance of a culturally significant location. This chapter provides a definition of cumulative effects, a description of past, present, and reasonably foreseeable actions relevant to cumulative effects, an analysis of cumulative impacts and any irreversible and irretrievable commitment of resources.

5.1 Definition of Cumulative Impacts

The Council on Environmental Quality regulations stipulate that the cumulative effects analysis within an EA should consider the potential environmental impacts resulting from “the incremental impacts of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions” (40 CFR 1508.7). Cumulative impacts are most likely presented when there is a conflict or relationship between a proposed action and another action expected to occur in or adjacent to the location of the proposed action. Actions that occur within the geographic boundaries of the proposed action or occur during the time period of the proposed action would present a higher potential for cumulative impacts. To identify cumulative impacts, the analysis needs to address three fundamental questions:

1. Does a relationship exist such that affected resource areas of the proposed action might interact with the affected resource areas of past, present, or reasonably foreseeable actions?
2. If one or more of the affected resources areas of the proposed action and another action could be expected to interact, would the proposed action affect or be affected by impacts of the other action?
3. If such a relationship exists, then does an assessment reveal any potentially significant impacts not identified when the proposed action is considered alone?

5.2 Past, Present, and Reasonably Foreseeable Actions

As this EA is being prepared for the MFH Master Plan, all potential projects and foreseeable actions in the housing property would be covered under this report. This includes all demolition, construction, housing and utility renovation, landscaping, road construction, and maintenance on the housing property. It also includes the development for the various new land uses on the existing housing property, such as light industrial, administrative, recreation, or Air Force operations.

In the event of a change in mission of the 89 AW, there would be a potential change in number of personnel required, which in turn would create a change to the allotment of personnel required

to have on-base MFH. This would lead to potential changes in number of units demolished, renovated, and constructed, altering the amount of new land use. Since a major change in the 89 AW's mission is not anticipated in the near future (Andrews AFB 2003a), this is not a reasonably foreseeable action. Another potential impact would result if the Air Force chose to change the 60-minute commute distance, either back to a 30-minute commute. This would potentially change the number of personnel required to live on-base, altering the existing proposal.

Other reasonably foreseeable actions occurring adjacent to or nearby the housing property include:

- New community land use will be created on the west side of the base as a result of the proposed forth child development center.
- Community improvements to upgrade pedestrian access, provide outdoor gathering areas, and improve the aesthetics of the dormitory campus.
- There are future land use plans to provide space for the eventual replacement of the Malcolm Grow Medical Center.
- Construct new parking lots in association with the Medical Center and Community Center concept area, north of the housing area.
- There are plans to construct a new Temporary Family Lodging facility in FY 2006 or 2007. The facility will demolish buildings 1802, 1803, and 1804 and will construct 50 new units in three two-story buildings on the corner of Brookley and F streets as well as construct a 1500 square foot support facility (Brown 2003).
- Plans are being evaluated to construct a multi-purpose facility combining a 265-room visitor's quarter with a conference center/ballroom and restaurant.

5.3 Analysis of Cumulative Impacts

The key issues and primary resource areas of interest in this EA are short-term noise effects, short-term storm water effects, and changes in land use. The cumulative impacts of the proposed action of the other resources areas would be negligible with little to no irreversible or irretrievable commitment of resources. The combination of impacts from the proposed action and the past, present, and reasonably foreseeable actions would be negligible. Overall, the proposed Alternatives A and B would have the same minor positive impacts on the environment compared to the existing conditions at Andrews AFB. The Alternatives would result in similar short-term negligible negative impacts, with B having less negative impacts, and potential minor long-term environmental effects from both Alternatives.

5.4 Irreversible and Irretrievable Commitment of Resources

There would be the creation of temporary negligible negative impacts during the period of construction. The proposed demolition, renovation, and construction would require the use of heavy machinery, fuels, and other materials. This would create an irretrievable commitment of resources including fuels, concrete, steel, and other construction materials. The amount of fuel used during this action would represent a negligible amount of fuel used at Andrews AFB for Air Force operations. The amount of construction material used would be negligible compared to the amount of construction material that is used each day in the Washington D.C. metropolitan

area. With the potential creation of as much as 49 acres of new green space, Alternative A would represent a minor positive cumulative impact on the environment of Andrews AFB. If this same new land would be used for the creation of administrative buildings, community use, or light industrial use, the cumulative environmental impacts would be less positive, potentially having no impact, or negligible to minor negative impacts on the environment and use of irreversible and irretrievable commitment of resources.

Alternative B would have the same negligible commitment of resources as Action Alternative A. This Alternative would commit even less irreversible and irretrievable resources because there would be less construction, as there would be no whole house renovations. This alternative would also have the same minor positive impact, with the same amount of potential green space created. As well as the same potential for no positive, no impact, or negligible to minor negative impact from other potential new land uses.

The No Action alternative would result in no change in the commitment of resources, resulting in no irreversible or irretrievable commitment of resources.

6.0 REFERENCES

Andrews AFB, 1998. AICUZ Study Resource Book.

Andrews AFB, 2001. *Integrated Natural Resource Plan*. Prepared for the Air Force Headquarters 311th Human Systems Wing Air Force Materiel Command Brooks Air Force Base, Texas.

Andrews AFB, 2002a. *Asbestos Management Program Plan*, 89th Airlift Wing OPLAN 32-1052.

Andrews AFB, 2002b. *Bird Aircraft Strike Hazard Plan*, 89th Airlift Wing OPLAN 91-212.

Andrews AFB, 2002c. *89 AW Hazardous Materials Planning and Response Plan*. Draft Andrews Air Force Base, Maryland.

Andrews AFB, 2002d. *Hazardous Waste Management Plan*. Andrews Air Force Base, Maryland.

Andrews AFB, 2002e. *Spill Prevention, Control, and Countermeasures Plan*. Draft Final Andrews Air Force Base, Maryland.

Andrews AFB. Draft 2002f. *Stormwater Pollution Prevention Plan*. Andrews Air Force Base, Maryland.

Andrews AFB, 2003a. *Andrews AFB General Plan*. Prepared for the 89 Airlift Wing.

Andrews AFB, 2003b. *Housing Requirements and Market Analysis*, 2003-2008, Preliminary Report.

Andrews AFB, 2003c. *Stormwater Protection at Andrews AFB for Housing Residents*. Environmental Flight, Compliance, 89 CES/CEQV.

Brown, Joseph, Andrews AFB 89 CES/CEV, 2003. Personal communication with Richard McKissock, December 31.

Council on Environmental Quality (CEQ), 1997. Guidance under the *National Environmental Policy Act*. 10 December.

Environmental Quality Resources, Inc. (EQR), 1997. *Natural Resource Inventory and Forest Stand Delineation*. Andrews AFB Prince George's County, Maryland. Gaithersburg, Maryland.

Ewell, Ed, Andrews AFB Housing Flight Manager, 2003. Personal communication with Richard McKissock, September 25.

Franklin, SSGT and Guillory, SGT, 2003. Personal communication with Richard McKissock, September 25.

Franklin, SSGT, 2004. Personal communication with Richard McKissock, January 8.

Gibson, Huntanetta, 2003. Personal communication with Richard McKissock, September 25.

Hammond, Tim, 2003. Personal communication with Richard McKissock, September 25.

Harris, Keith, 2003. Personal communication with Richard McKissock, November 5.

International Technology Corporation (IT), 1997. Project Summary Report for the Basewide Groundwater Level Survey Program. Prepared for Air Force Center for Environmental Excellence, Brooks AFB, Texas, Contract No. F41624-94-D-8047, Delivery Order 029, Project 763513, August 1997. IT, Knoxville, Tennessee.

Maryland Department of the Environment (MDE), 2003, www.mde.state.md.us

Mitchell, Freddie, 2003. Personal communication with Richard McKissock, November 5.

Prince George's County, <http://www.co.pg.md.us/>.

Roughgarden, Kevin, 2003. Personal communication with Richard McKissock, September, 25.

Summner, David, 2003. Personal communication with Richard McKissock, September 25.

U.S. Air Force (USAF), 1998. Air Installation Compatible Use Zone (AICUZ) Study. Andrews Air Force Base, Maryland.

U.S. Census Bureau (USCB), 2001. Overview of Race and Hispanic Origin. *Census 2000 Brief*. C2KBR/01-1. March.

U.S. Census Bureau, 2003a. State and County *QuickFacts*, District of Columbia. <http://quickfacts.census.gov/qfd/states/11000.html>.

U.S. Census Bureau, 2003b. State and County *QuickFacts*, Prince George's County. <http://quickfacts.census.gov/qfd/states/24/24033.html>.

U.S. Census Bureau, 2003c. Poverty: 2000 Highlights. <http://www.census.gov/hhes/poverty/poverty00/pov00hi.html>.

U.S. EPA, 2003, Region 3, Title V Operating Permits Database, <http://www.epa.gov/reg3artd/permitting/maryland2.htm>.

U.S. Department of Health and Human Services (HHS), 2003. The 2003 HHS Poverty Guidelines. <http://aspe.hhs.gov/poverty/03poverty.htm>.

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Table 8-1 provides the names of those individuals that were responsible for the preparation of this EA. This list includes the key management personnel from the lead agency.

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